

**APPENDIX A**

**PROJECT SITE LEGAL DESCRIPTION**



**APPENDIX A**  
**LEGAL DESCRIPTION OF PROJECT SITE**  
**Tourtelot Remediation Site, Benicia, California**

- All of the property included within the boundaries of Unit D-6, as shown in the Final Subdivision Map entitled “Southampton Unit D-6, Benicia, Solano County, California,” filed in the Office of the Recorder, County of Solano, State of California, on August 8, 1997, in Book 67 of Maps at Page 1.
- All of the property included within the boundaries of Unit D-7, as shown in the Final Subdivision Map entitled “Southampton Unit D-7, Benicia, Solano County, California,” filed in the Office of the Recorder, County of Solano, State of California, on August 8, 1997, in Book 67 of Maps at Page 13.
- The following property within the boundaries of Unit D-1, as shown in the Final Subdivision Map entitled “Southampton Unit D-1, Benicia, Solano County, California,” filed in the Office of the Recorder, County of Solano, State of California, on September 17, 1991, in Book 61 of Maps at Page 23:
  - (1) Parcels “A” and “B”
  - (2) 81 residential lots
  - (3) Roads, sidewalks, curbs, and gutters encompassed within the perimeter boundaries of the 81 Unit D-1 lots described above.
- Parcel “A” as shown on the map entitled “Final Map of Southampton Unit D-4, Benicia, Solano County, California,” filed in the Office of the Recorder, County of Solano, State of California, on May 4, 1992, in Book 62 of Maps at Page 15.
- Parcel “A” as shown on the map entitled “Final Map of Southampton Unit D-5, Benicia, Solano County, California,” filed in the Office of the Recorder, County of Solano, State of California, on October 10, 1995, in Book 65 of Maps at Page 74.
- Approximately 1.8 acres, owned by the City of Benicia and situated as generally shown in Figure 2-1 of the EIR. Such property comprises a portion of Assessor Parcel Number 83-220-080 and contains portions of the Trinitrotoluene (TNT) Strips.
- Approximately 1.8 acres owned by Valero Energy Corporation and situated as generally shown in Figure 2-1. Such property comprises a portion of Assessor Parcel Number 83-210-220.

**Table A-1. Assessor Parcels Associated with Project Site**  
**Page 1 of 3**

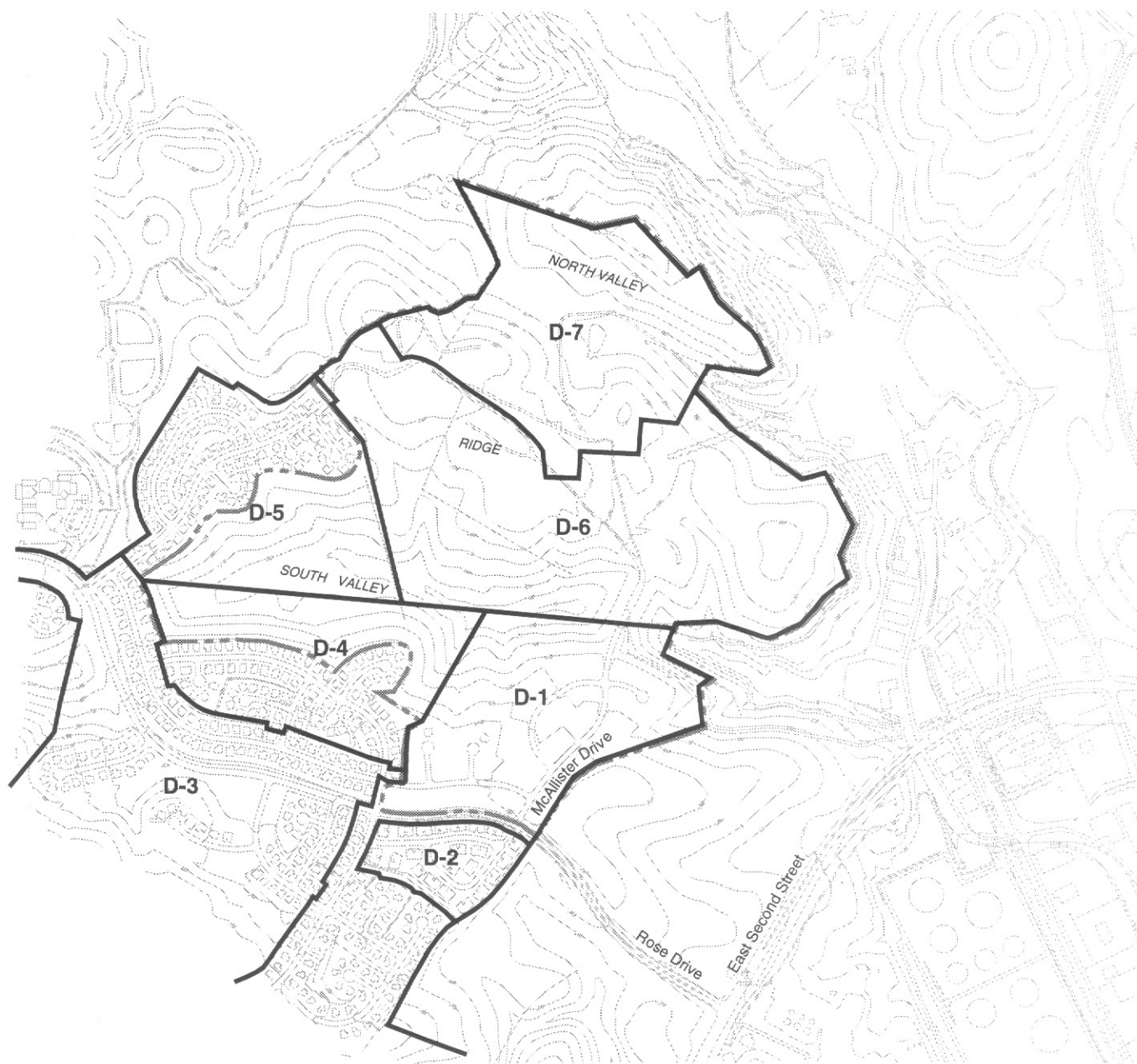
Unit Number	Assessor Parcel Number	Lot Numbers/Parcel Description
D-1	83-371-010-130	Lots 17-29
D-1	83-372-010-050	Lots 30-34
D-1	83-381-010-160	Lots 35-50
D-1	83-383-060-120	Lots 51-62
D-1	83-382-010-080	Lots 63-70
D-1	83-373-010-270	Lots 71-97
D-6	83-532-010-030	Lots 1-3
D-6	83-553-010-190	Lots 4-22
D-6	83-562-010-090	Lots 23-31
D-6	83-582-010-180	Lots 32-49
D-6	83-571-010-220	Lots 50-71
D-6	83-572-110-240	Lots 72-85
D-6	83-581-010-270	Lots 86-112
D-6	83-572-010-100	Lots 113-122
D-6	83-561-150-360	Lots 123-144
D-6	83-552-010-060	Lots 145-150
D-6	83-542-010-050	Lots 151-155
D-6	83-534-010-080	Lots 156-163
D-6	83-533-090-170	Lots 164-172
D-6	83-543-010-030	Lots 173-175
D-6	83-551-010-150	Lots 176-190
D-6	83-533-010-080	Lots 191-198
D-6	83-531-100-160	Lots 199-205

**Table A-1. Assessor Parcels Associated with Project Site**  
**Page 2 of 3**

Unit Number	Assessor Parcel Number	Lot Numbers/Parcel Description
D-7	83-531-010-090	Lots 1-9
D-7	83-511-010-210	Lots 10-30
D-7	83-521-010-150	Lots 31-45
D-7	83-571-230	Lot 46
D-7	83-522-010-070	Lots 47-53
D-7	83-541-260-330	Lots 54-61
D-7	83-512-010-050	Lots 62-66
D-7	83-541-100-250	Lots 67-82
D-7	83-535-010-100	Lots 83-92
D-7	83-541-020-090	Lots 93-100
D-7	83-561-010-140	Lots 101-114
D-7	83-542-060-120	Lots 115-121
D-7	83-534-090-180	Lots 122-131
D-1	83-210-180	Open Space - 11.94 acres in South Valley (west of McAllister Drive Land Bridge) - Owned by City (Parcel A)
D-1	83-381-170	Open Space - 3.388 acres in South Valley (east of McAllister Drive Land Bridge) - Owned by City (Parcel B)
D-4	83-210-240	Open Space - 18.45 acres in South Valley - Owned by City (Parcel A)
D-5	83-210-260	Open Space - 19.18 acres in South Valley - Owned by FN Projects (Parcel A)
D-6	83-210-280	Open Space - 23.05 acres in South Valley - Owned by FN Projects (Parcel G)
D-6	83-210-290	Open Space - 3.52 acres in South Valley - Owned by FN Projects (portion of Parcel H)

**Table A-1. Assessor Parcels Associated with Project Site**  
**Page 3 of 3**

Unit Number	Assessor Parcel Number	Lot Numbers/Parcel Description
D-6	83-582-190	Open Space - 2.75 acres in North Valley - Owned by FN Projects (portion of Parcel H)
D-6	83-571-240	Open Space - 3.86 acres in North Valley - Owned by FN Projects (portion of Parcel H)
D-6	83-531-017	Open Space - 0-.03 acre in North Valley - Owned by FN Projects (Parcel F)
D-7	83-511-220	Open Space - 7.55 acres north of Development - Owned by FN Projects (portion of Parcel J)
D-7	83-521-160	Open Space - 8.46 acres north of Development - Owned by FN Projects (portion of Parcel J)
D-7	83-541-010	Park Site - 2.58 acres - Owned by FN Projects (Parcel K)
Not applicable	83-220-080 (portion)	Approximately 1.8 acres owned by the City of Benicia and situated as generally shown in Figure 2-1 of the EIR. Such property comprises a portion of Assessor Parcel Number 83-220-080 and contains portions of the TNT Strips
Not applicable	83-210-220 (portion)	Approximately 1.8 acres owned by Valero Energy Corporation and situated as generally shown in Figure 2-1 of the EIR. Such property comprises a portion of Assessor Parcel Number 83-210-220



## EXPLANATION

-  Project Site Boundary
-  Unit Parcel Boundary

## Assessor Parcels Associated with the Project Site



Figure A-1

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**APPENDIX B**

**DRAFT  
COVENANT TO  
RESTRICT USE OF PROPERTY**



RECORDING REQUESTED BY AND  
WHEN RECORDED, MAIL TO:

September 8, 2001 Draft

Space above this line for Recorder's Use Only

**COVENANT TO RESTRICT USE OF PROPERTY  
(ENVIRONMENTAL RESTRICTIONS)**

THIS COVENANT AND AGREEMENT TO RESTRICT USE OF PROPERTY ("Covenant") is made as of the \_\_\_\_ day of \_\_\_\_\_, 200\_\_, by and between GRANITE MANAGEMENT CORPORATION, a Delaware corporation ("Granite"), FN PROJECTS, INC., a California corporation ("FNP"), the CITY OF BENICIA, California, a municipal corporation ("City"), and the CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY -DEPARTMENT OF TOXIC SUBSTANCES CONTROL (the "Department" or "DTSC" or "Covenantee"). Granite, FNP and City (collectively referred to as the "Covenantors") and the Department, collectively referred to as the "Parties", hereby agree that the use of the "Restricted Areas", as defined in paragraph 2.08 below, be restricted as set forth in this Covenant.

**ARTICLE I  
Statement of Facts**

1.01 FNP is a wholly owned subsidiary of Granite and is the owner of parcels of real property located in the City of Benicia ("City"), County of Solano, State of California, and more particularly described as follows:

Parcel "F" as shown on map entitled "Final Map of Southampton Unit D-6," Benicia, Solano County, California, filed in the Office of the Recorder, County of Solano, State of California, on August 8, 1997, in Book 67 of Maps at Page 1. [Parcel Number 083-531-170- 0.03 acre.

Parcel "G" as shown on map entitled "Final Map of Southampton Unit D-6," Benicia, Solano County, California, filed in the Office of the Recorder, County of Solano, State of California, on August 8, 1997, in Book 67 of Maps at Page 1. [Parcel Number 083-210-280 - 23.05 acres]

Lot Parcel "H" as shown on the map entitled "Final Map of Southampton Unit D-6," Benicia, Solano County, California, filed in the Office of the Recorder, County of Solano, State of California, on August 8, 1997, in Book 67 of Maps at

Page 1. [Parcel Number 083-210-290 - 3.52 acres; Parcel Number 083-582-190 - 2.75 acres and Parcel Number 083-571-240 - 3.86 acres]

Parcel "A" as shown on the map entitled "Final Map of Southampton Unit D-5, Benicia, Solano County, California," filed in the Office of the Recorder, County of Solano, State of California, on October 10, 1995, in Book 65 of Maps at Page 74. [Parcel Number 083-210-260 - 19.18 acres]

Parcel "J" (except for the Open Space Access Pathway, as described below), as shown on the map entitled "Final Map of Southampton Unit D-7", Benicia, Solano County, California, filed in the Office of the Recorder, County of Solano, State of California, on August 8, 1997, in Book 67 of Maps at Page 13 [Parcel Number 083-511-220 - 7.55 acres, Parcel Number 083-521-160 - 8.46 acres]

The Open Space Access Pathway is located between the eastern property line of Lot 33 and the rear property lines of Lots 34 and 35 in Unit D-7. It will provide access from the future location of McAllister Drive into the open space area in Parcel J. The location of the Open Space Access Pathway is shown generally on the map attached hereto as Exhibit A and incorporated herein by this reference.

City is the owner of parcels of real property located in the City of Benicia, County of Solano, State of California, and more particularly described as follows:

Parcel "A" as shown in the Final Subdivision Map entitled "Southampton Unit D-1, Benicia, Solano County, California," filed in the Office of the Recorder, County of Solano, State of California, on September 17, 1991, in Book 61 of Maps at Page 23. [Parcel Number 083-210-180 - 11.94 acres]

Parcel Lot "B" as shown in the Final Subdivision Map entitled "Southampton Unit D-1, Benicia, Solano County, California," filed in the Office of the Recorder, County of Solano, State of California, on September 17, 1991, in Book 61 of Maps at Page 23. [Parcel Number 83-381-170 - 3.388 acres]

Parcel "A" as shown on the map entitled "Final Map of Southampton Unit D-4, Benicia, Solano County, California," filed in the Office of the Recorder, County of Solano, State of California, on May 4, 1992, in Book 62 of Maps at Page 15. [Parcel 83-210-240 - 18.45 acres]

Each of the parcels described above is referred to herein individually as an "Open Space Parcel" and collectively with others of them as "Open Space Parcels." These parcels are shown generally on the map attached as Exhibit A.

**[Note: Granite will propose a paragraph that describes any easements and other legal rights of access that have previously been granted for the Open Space Parcels. If such rights exist and allow third parties to engage in Prohibited Uses in the Open Space Parcels,**

**Granite would work with the City to modify the access rights to insure they are subject to the restrictions in this Covenant. If Granite and the City are unsuccessful, the property subject to the unrestricted access will be cleaned up to the standard necessary for unrestricted use and will not be subject to this Covenant.]**

1.02 A wetland area, covering approximately 4.89 acres ("Wetlands"), is located within the Open Space Parcels at the general location shown on the map attached as Exhibit A.

1.03 McAllister Drive crosses the Wetlands at the McAllister Drive Land Bridge ("Land Bridge"). The location of the Land Bridge is shown generally on the map attached as Exhibit B. The general location of the currently paved roads, gutters, curbs and sidewalks on the Land Bridge ("Currently Paved Land Bridge Road") is also shown on Exhibit B. In addition, copies of the Subdivision Improvement Plans for Unit D-1 (prepared by Bissell & Karn, Inc. and dated 7/6/93) ("Unit D-1 Plans") and the Subdivision Improvement Plans for Unit D-6 (prepared by Robert A. Karn and Associates, Inc. and dated 8/28/96) ("Unit D-6 Plans") are on file with the City and copies may be obtained from the City at the notice address set forth in paragraph 7.04 below. The Unit D-1 Plans and the Unit D-6 Plans show in more detail the location of the Currently Paved Land Bridge Road. The portion of the road that crosses the Land Bridge within the boundaries of Unit D-1 is paved and constitutes the Currently Paved Land Bridge Road. The remainder of the road crosses the Land Bridge within the boundaries of Unit D-6 and is unpaved. City has not yet accepted the dedication of the Currently Paved Land Bridge Road. When the City accepts the dedication of the Currently Paved Land Bridge Road, the City shall become the owner of the Currently Paved Land Bridge Road.

**[Note: Granite will propose a paragraph that describes any easements and other legal rights of access that have previously been granted that allow third parties to engage in Prohibited Uses on the Currently Paved Land Bridge Road. If such rights exist, Granite would work with the City to modify the access rights to insure they are subject to the restrictions in this Covenant. If Granite and the City are unsuccessful, the property subject to the unrestricted access will be cleaned up to the standard necessary for unrestricted use and will not be subject to this Covenant.]**

1.04 FNP is the owner of 81 residential lots which are designated as Assessor Parcel Numbers 83-371-010-130, 83-372-010-050, 83-381-010-160, 83-382-010-080, 83-383-010-120 and 83-373-010-270 and which comprise a portion of the area commonly referred to as Unit D-1 of the Southampton Subdivision, which is more particularly described in the Final Subdivision Map entitled "Southampton Unit D-1, Benicia, Solano County, California," filed in the Office of the Recorder, County of Solano, State of California on September 17, 1991, in Book 61 of Maps at Page 23 ("Unit D-1"). The location of such 81 lots is shown generally on the map attached as Exhibit B and incorporated herein by this reference. In approving the subdivision that created Unit D-1, the City required FNP to construct certain improvements, including roads, curbs, sidewalks, gutters and utilities. The general location of the roads, gutters, curbs and sidewalks lying within the boundaries of such 81 lots ("D-1 Roads") is also generally shown in Exhibit B. The Unit D-1 Plans show in more detail the location of the D-1 Roads. The D-1 Roads and utilities have been constructed, but, as of the date of this Covenant, the City has not yet accepted

the dedication of the D-1 Roads. When the City accepts the dedication of the D-1 Roads, the City shall become the owner of the D-1 Roads

**[Note: Granite will propose a paragraph that describes any easements and other legal rights of access that have previously been granted that allow third parties to engage in Prohibited Uses on the D-1 Roads. If such rights exist Granite would work with the City to modify the access rights to insure they are subject to the restrictions in this Covenant. If Granite and the City are unsuccessful, the property subject to the unrestricted access will be cleaned up to the standard necessary for unrestricted use and will not be subject to this Covenant.]**

1.05 Between 1944 and 1960, the U.S. Army leased real property that has come to be commonly referred to as the Tourtelot Property. The leased property (“Leased Lands”) included portions of the Open Space Parcels and Unit D-1 as well as other property. The Army operated such Leased Lands as part of the Benicia Arsenal. In 1996, during preliminary site preparation associated with anticipated development of the Tourtelot Property, concrete filled howitzer shells were unearthed on property owned by FNP that is located within the Leased Lands. FNP and its parent company, Granite, initiated a preliminary investigation for ordnance and explosives (OE) and some OE items were encountered. In 1998, the U.S. Army Corps of Engineers (“USACE”) conducted additional investigations within the Leased Lands and located additional OE items. In June 1999, DTSC issued an Imminent and/or Substantial Endangerment Determination and Remedial Action Order (“DTSC Order”). The requirements of the DTSC Order include (among others) the investigation and remediation of OE on the Leased Lands and adjacent lands, including the Restricted Areas (as defined in paragraph 2.08), pursuant to Chapter 6.8 of Division 20 of the Health and Safety Code under the oversight of DTSC. The DTSC Order named Granite, FNP, Pacific Bay Homes, and the U.S. Army Corps of Engineers as Respondents.

1.06 The Remedial Action Plan (“DTSC RAP”) prepared by DTSC for the Tourtelot Cleanup Project, and approved by DTSC on the date set forth in paragraph 1.08 below, required site clearance activities to locate and remove OE items from the Leased Lands and adjacent properties. As detailed in the DTSC RAP, in order to minimize short-term and potential long-term environmental impacts in a cost-effective manner, the search for buried OE items did not involve excavation of all the soils in the Open Space Parcels in lifts until no OE or OE scrap was found in two consecutive lifts, or bedrock was encountered. Nor were the Currently Paved Land Bridge Road or D-1 Roads removed to identify and remove OE items that might be buried beneath them. Based on these search limitations, DTSC determined in the DTSC RAP that the use of the Restricted Areas (as defined in paragraph 2.08 below) for any of the Prohibited Uses (as defined in paragraph 2.07 below) would entail unacceptable health and safety risks from potential accidental detonation of OE. Consequently, the DTSC RAP provides that covenants or similar control mechanisms be provided for the Restricted Areas to limit future use of these areas and establish procedures for workers needing to perform ground-intrusive activities in areas where there is a potential to encounter OE. The Department further concluded that the Restricted Areas, as remediated, and subject to the restrictions of this Covenant and the other institutional controls and monitoring requirements described in the DTSC RAP, do not present an unacceptable threat to human health or safety or to the environment.

1.07 The City's General Plan currently identifies the land use for the Open Space Parcels as Open Space General, and the City's Zoning Ordinance identifies the parcels as OS (Open Space). **[Note: As of the date of the public release of the Draft EIR for the Tourtelot Cleanup Project, the Open Space Parcels are zoned as Single Family Residential. The zoning change shall be effective before the Covenant is executed and recorded and before DTSC allows construction of residences on Unit D-1 or certifies the site.]** Neither the General Plan nor the Zoning Ordinance prohibit all of the Prohibited Uses.

1.08 The Department circulated a draft Remedial Action Plan, together with a draft Environmental Impact Report pursuant to the California Environmental Quality Act, Public Resources Code section 21000 et seq., for public review and comment. The final Environmental Impact Report was certified by the Department on **[reserved]** and the final DTSC RAP was approved by the Department on **[reserved]**.

1.09 The DTSC RAP requires the preparation of a Contingency Action Plan to set forth the procedures that shall be followed if Excavation Activities (as defined in paragraph 2.03 below) are carried out in any Restricted Areas. The Contingency Action Plan is subject to future amendment. A copy of the current Contingency Action Plan dated \_\_\_\_\_, 200\_\_, and approved by the DTSC is on file with DTSC and the City. Any amendments to the Contingency Action Plan that are approved by DTSC will also be maintained on file by DTSC and the City. Copies of the Contingency Action Plan and any amendments to the Plan can be obtained from the City at the address set forth in paragraph 7.04 below. **[Note: Section 5.3.1 and Appendix A of the Draft Remedial Action Plan describe DTSC's proposed requirements for the Contingency Action Plan, which is to be approved by DTSC after it has approved the final Remedial Action Plan.]**

1.10 The DTSC RAP requires that the Restricted Areas be monitored and maintained to ensure the effectiveness of the remedial actions at the project site. The operation and maintenance (O&M) activities to be included in the Operation and Maintenance Plan include erosion control, slope stability monitoring and wetlands mitigation. The Operation and Maintenance Plan shall be implemented pursuant to an Operation and Maintenance Agreement. The Operation and Maintenance Agreement is subject to future amendment. A copy of the current Agreement dated \_\_\_\_\_, 200\_\_, and approved by the DTSC is on file with DTSC and the City. The Operations and Maintenance Agreement and any amendments to the Agreement that are approved by DTSC will be maintained on file by DTSC and the City and can be obtained from the City at the address set forth in paragraph 7.04 below. **[Note: Section 5.3.1 and Appendix A of the Draft Remedial Action Plan describes DTSC's proposed requirements for the Operations and Maintenance Plan. The Operations and Maintenance Agreement will implement these requirements and is to be approved by DTSC after it has approved the final Remedial Action Plan.]**

1.11 The DTSC RAP also requires water quality monitoring to verify the effectiveness of the proposed remedial actions. Monitoring activities include sampling groundwater, groundwater seeps, subdrain water and surface water. Requirements relating to the location, operation and maintenance of the sampling points are included in the Operation and Maintenance Agreement. **[Note: Proposed water quality monitoring locations are discussed in the Draft Non-Ordinance and Explosives Remedial Design Document.]**

1.12. The parties enter into this Covenant pursuant to Civil Code section 1471, Health and Safety Code section 25222.1 and Health and Safety Code section 25355.5(a)(1)(C). Pursuant to Civil Code section 1471(c), the Department has determined that this Covenant is reasonably necessary to protect present or future human health and safety or the environment as a result of the potential presence of hazardous materials, as defined in Health and Safety Code section 25260, in the Restricted Areas. The Department has also determined that such protection is part of the remedy contemplated in the RAP. The Parties therefore intend that the use of the Restricted Areas be restricted as set forth in this Covenant to protect human health, safety and the environment.

## ARTICLE II

### DEFINITIONS

2.01 D-1 Roads. “D-1 Roads” shall have the meaning given in paragraph 1.04 above.

2.02 Currently Paved Land Bridge Road. “Currently Paved Land Bridge Road” shall have the meaning given in paragraph 1.03 above.

2.03 Excavation Activities. “Excavation Activities” means excavation or other ground-intrusive activities in the Restricted Areas that would require any digging or other penetration of the land surface that involves: (1) the displacement of 10 cubic feet or more of soil within one foot of the surface on any portion of the Open Space Parcels, (2) any penetration to a depth greater than one foot on any portion of the Open Space Parcels or (3) any penetration beneath the aggregate base that underlies the asphalt surface of the D-1 Roads or the Currently Paved Land Bridge Road.

2.04 Occupant(s). “Occupants” means Owners and any person or entity entitled by ownership, leasehold, or other legal relationship to occupy any portion of the Restricted Areas.

2.05 Open Space Parcel(s). Each of the parcels described in paragraph 1.01 above is referred to herein individually as a “Open Space Parcel” and collectively with others of them as “Open Space Parcels.”

2.06 Owner(s). “Owner(s)” means the Covenantors and each of their successors in interest, including heirs and assigns, who at any time hold fee title to all or any portion of the Restricted Areas.

2.07 Prohibited Uses. “Prohibited Uses” means the activities prohibited on the Restricted Areas pursuant to paragraph 4.01 below.

2.08 Restricted Areas. “Restricted Areas” means the Open Space Parcels (but excluding the Open Space Access Pathway), the D-1 Roads and the Currently Paved Land Bridge Road.

## ARTICLE III

### GENERAL PROVISIONS

3.01. Restrictions to Run with the Land. This Covenant sets forth protective provisions, covenants, restrictions, and conditions (collectively referred to as "Restrictions"), subject to which the Restricted Areas and every portion thereof shall be improved, held, used, occupied, leased, sold, hypothecated, encumbered, and/or conveyed. Each and every Restriction: (a) runs with the land pursuant to Health and Safety Code sections 25222.1 and 25355.5(a)(1)(C) and Civil Code section 1471; (b) inures to the benefit of and passes with each and every portion of the Restricted Areas, (c) is for the benefit of, and is enforceable by the Department, and (d) is imposed upon the Restricted Areas in their entirety unless expressly stated as applicable only to a specific portion thereof.

3.02. Binding upon Owners/Occupants. Pursuant to Health and Safety Code sections 25222.1 and 25355.5(a)(1)(C), this Covenant binds all Owners, Occupants and their agents and employees. Pursuant to Civil Code section 1471, this Covenant binds all Owners, Occupants and any other person having any interest in any portion of the Restricted Areas derived through any Owner of the Restricted Areas or any portion thereof. Pursuant to Civil Code section 1471(b), all successive owners of the Restricted Areas or any portion thereof are expressly bound hereby for the benefit of the Department.

3.03. Written Notice of the Presence of Hazardous Substances. The Owner of the Restricted Areas, or any portion thereof, shall, prior to the sale, lease, or rental of any portion of the Restricted Areas by that Owner, give written notice that there is reasonable cause to believe that OE may be present in the soils below the surface of the Restricted Areas to the buyer, lessee, or renter of the Restricted Area, as required by Health and Safety Code section 25359.7. Owners shall structure any leases or rentals of the real property so that this notice requirement applies to all subleases and rental agreements

3.04. Incorporation into Deeds, Leases and Easements. The Restrictions set forth herein shall be incorporated by reference in each and all deeds, leases and subleases for any portion of the Restricted Areas and in all easements or other instruments that grant any third party the right to engage in any Excavation Activities in Restricted Areas. Furthermore, each Owner or Occupant shall include in any instrument conveying any interest in all or any portion of the Restricted Areas, including but not limited to deeds, leases, easements and mortgages, a notice which is in substantially the following form:

NOTICE: THE INTEREST CONVEYED HEREBY IS SUBJECT TO AN ENVIRONMENTAL RESTRICTION AND COVENANT TO RESTRICT USE OF PROPERTY, RECORDED IN THE OFFICE OF THE RECORDER, COUNTY OF SOLANO, STATE OF CALIFORNIA ON [DATE], IN BOOK \_\_, PAGE \_\_, IN FAVOR OF AND ENFORCEABLE BY THE CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL.

3.05. Conveyance of Restricted Areas. The conveying Owner shall provide notice to the Department not later than thirty (30) days after any conveyance of any ownership interest in the Restricted Areas (excluding mortgages, liens, and other non-possessory encumbrances). The Department shall not, by reason of this Covenant, have authority to approve, disapprove, or otherwise affect proposed conveyance, except as otherwise provided by law, by administrative order, or by a specific provision of this Covenant.

## ARTICLE IV

### RESTRICTIONS

4.01. Prohibited Uses. The Restricted Areas, or any portion thereof, shall not be used for any of the following Prohibited Uses:

- (a) a residence, including any mobile home or factory built housing, constructed or installed for use as residential human habitation;
- (b) a hospital for humans;
- (c) a public or private school for persons under 21 years of age;
- (d) a day care center for children;
- (e) **[Note: Before the Covenant is executed provisions acceptable to DTSC will be added that will prohibit use of Restricted Areas for certain types of park activities and facilities. By way of example, it is anticipated that facilities and activities such as the following would be Prohibited Uses: tot lots, play lots, playgrounds, playfields and par course equipment.];**
- (f) camping;
- (g) construction of any structure (as defined in Section 220-S of the 1998 California Building Code, attached hereto as Exhibit C) to be used for commercial or industrial purposes; or
- (h) Excavation Activities [unless performed in accordance with section 4.03 herein].

4.02. Soil Management. The soil management activities that the DTSC RAP requires to be performed within the Restricted Areas include erosion control, slope stability monitoring, wetlands monitoring and mitigation, and monitoring for unauthorized or improperly performed Excavation Activities. Soil management activities shall be performed pursuant to the Operation and Maintenance Agreement referred to in paragraph 1.10 above.

4.03. Excavation Activities. Excavation Activities shall be authorized or undertaken in accordance with the requirements set forth in paragraphs 4.04 through 4.07 herein.

4.04. Authorization to Proceed. **[Note: Prior to execution of the Covenant, provisions will be added to this section describing the review and approval process that the City will follow to authorize City employees or third parties to conduct Excavation Activities (“Authorization Process”). The Authorization Process must be approved by**

**DTSC and may take the form of written procedures to be followed internally by the City when Excavation Activities are to occur in Restricted Areas owned by the City, permitting requirements imposed through appropriate City Ordinances, and/or other processes or procedures proposed by the City and acceptable to DTSC.]**

4.05. Contingency Action Plan. During any Excavation Activities in a Restricted Area, the Owner of such Restricted Area shall comply with all of the requirements of the then current Contingency Action Plan referred to in paragraph 1.09 above.

4.06. City Notice to DTSC Regarding Repeal or Amendment of Authorization Process. The City shall notify DTSC in writing at the notice address set forth in paragraph 7.04 at least thirty (30) days prior to any proposed repeal or amendment of the Authorization Process. **[Note: Before execution of this Covenant, provisions will be added to allow DTSC to impose additional approval requirements on Excavation Activities if the City proposes to repeal or to amend the Authorization Process and DTSC determines that after repeal or amendment the Authorization Process would no longer achieve the intent of this Covenant.]**

4.07. City to Report to DTSC. Beginning in the first full calendar year after the Covenant is executed, the City will file a written report with DTSC no later than March 31st of each year stating the number of approvals the City has granted under the Authorization Process, the approximate volume of materials removed during Excavation Activities, a description of any OE items that were detected and the treatment or disposal method used for the OE items. **[Note: Other requirements for the report may be identified and included prior to execution of the Covenant.]**

4.08. Changes in Land Use Designation or Zoning. An Owner shall not request, support or authorize any change in the land use designation or zoning of the Restricted Areas that is inconsistent with the Prohibited Uses unless the written approval of the DTSC is obtained; provided, however, that this paragraph 4.08 shall not be interpreted to preclude the City from carrying out any legally required action, including (but not limited to) processing ballot initiatives relating to changes in land use designations or zoning in the manner required by applicable law.

4.09. Access for Department. The Department shall have reasonable right of entry and access to the Restricted Areas for inspection, monitoring, and other activities consistent with the purposes of this Covenant, as deemed necessary by the Department in order to protect the public health or safety, or the environment. Department personnel who enter the Restricted Areas for these purposes shall comply with all reasonable security, safety, and sanitation measures specified by the Owner.

4.10. Access for Implementing Operation and Maintenance. The entity or person responsible for implementing the Operation and Maintenance Agreement shall have reasonable right of entry and access to the Restricted Areas for the purpose of implementing the Operation and Maintenance Agreement until the Department determines that no further Operation and Maintenance is required. The entity or person implementing the Operation and Maintenance Agreement shall comply with all reasonable security, safety, and sanitation measures specified by the Owner.

4.11. Non-interference with Environmental Monitoring Sampling Points. The following restrictions shall apply to all Owners and Occupants of the Restricted Areas:

- (a) Activities that may disturb the environmental monitoring sampling points (e.g. excavation, grading, removal, trenching, filling, earth movement, or mining) shall not be permitted on or within **[Reserved]** feet of any sampling point located in the Restricted Areas without prior review and approval by the Department. The Department shall respond to requests for such approval within twenty (20) days of a written request. Notwithstanding the foregoing, in the event of an emergency situation which requires more rapid action to protect public health and safety or the environment than the foregoing process would allow, such prior approval shall not be required. In such circumstance, the City or other Owner of the affected Restricted Areas shall endeavor to give telephonic notice to the Department as promptly as reasonably possible.
- (b) All uses and development of the Restricted Areas shall preserve the integrity and physical accessibility of the environmental monitoring sampling points.
- (c) Environmental monitoring sampling points located within the Restricted Areas shall not be altered without written approval by the Department.
- (d) The Owner or Occupant shall notify the Department of each of the following:
  - (i) the type, cause, location and estimated date of any damage to any environmental monitoring sampling point located within the Owner's portion of the Restricted Areas and
  - (ii) the type and date of repair of such damage. Notification to the Department shall be made as provided below within ten (10) working days of both the discovery of any such disturbance and the completion of any repairs. Notification of the discovery shall include a schedule for implementing repairs. Repairs shall be completed within 30 days of discovery unless a longer time is authorized in writing by DTSC. Timely and accurate notification by any Owner or Occupant shall satisfy these requirements on behalf of all other Owners and Occupants.

### ENFORCEMENT

5.01. Enforcement. Failure of any Covenantors or any Owner or Occupant to comply with any of the Restrictions specifically applicable to it shall be grounds for the Department to require that the breaching Covenantor or Owner or Occupant: (1) cease and remedy any Prohibited Uses of the Restricted Areas; (2) modify or remove any Improvements installed or used for any Prohibited Uses ("Improvements" herein shall mean all buildings, roads, driveways, park facilities and paved parking areas) constructed or placed upon any portion of the Restricted Areas in violation of the Restrictions and (3) cease and remedy any Excavation Activities not performed in accordance with paragraph 4.03 herein. Violation of this Covenant shall be grounds for the Department to file civil or criminal actions as provided by law.

ARTICLE VI  
VARIANCE, TERMINATION, AND TERM

6.01. Variance. Covenantors, or any other aggrieved person, may apply to the Department for a written variance from the provisions of this Covenant. Such application shall be made and processed in accordance with Health and Safety Code section 25233.

6.02 Termination. Covenantors, or any other aggrieved person, may apply to the Department for a termination of the Restrictions or other terms of this Covenant as they apply to all or any portion of the Restricted Areas. Such application shall be made and processed in accordance with Health and Safety Code section 25234.

6.03. Term. Unless ended in accordance with the Termination paragraph above, by law, or by the Department in the exercise of its discretion, this Covenant shall continue in effect in perpetuity.

ARTICLE VII  
MISCELLANEOUS

7.01. No Dedication Intended. Nothing set forth in this Covenant shall be construed to be a gift or dedication, or offer of a gift or dedication, of the Restricted Areas, or any portion thereof to the general public or anyone else for any purpose whatsoever.

7.02. Department References. All references to the Department include successor agencies/departments or other successor entity.

7.03. Recordation. The Covenantors shall record this Covenant, with all referenced Exhibits, in the County of Solano within ten (10) days of the Covenantors' receipt of a fully executed original and provide proof of recording to the Department within ten (10) days . The Department shall notify the Benicia Planning and Building Department of the recorded covenant pursuant to Health and Safety Code section 25220(d).

7.04. Notices. Whenever any person gives or serves any Notice ("Notice" as used herein includes any demand or other communication with respect to this Covenant), each such Notice shall be in writing and shall be deemed effective: (1) when delivered, if personally delivered to the person being served or to an officer of a corporate party being served, or (2) three (3) business days after deposit in the mail, if mailed by United States mail, postage paid, certified, return receipt requested:

Notice to City:

City of Benicia  
Attention: City Manager and City Attorney  
250 E. L Street  
Benicia, CA 94510  
Telephone Number for Telephonic Notices: 707-746-4200

Notice to DTSC:

Department of Toxic Substances Control  
Attention: \_\_\_\_\_  
P.O. Box 806  
Sacramento, CA 95812-0806  
Telephone Number for Telephonic Notices: 916-\_\_\_\_\_

Notice to USACE:

United States Army Corps of Engineers  
Attention: Bruce Handel  
1325 J Street  
Sacramento, CA 95814-2922  
Telephone Number for Telephonic Notices: 916-557-7906

Notice to Granite and FNP (while FNP retains ownership of any Restricted Area):

Granite Management Company and  
FN Projects, Inc.  
Attention: Southampton Hills Project Manager  
701 Southampton Road, Suite 209  
Benicia, CA 94510  
Telephone Number for Telephonic Notices: 707-745-2112

Any party may change its address, telephone number or the individual to whose attention a Notice is to be sent by giving written Notice in compliance with this paragraph.

7.05. Partial Invalidity. If any portion of the Restrictions or other term set forth herein is determined by a court of competent jurisdiction to be invalid for any reason, the surviving portions of this Covenant shall remain in full force and effect as if such portion found invalid had not been included herein.

7.06. Statutory References. All statutory references include successor provisions.

7.07. Authority to Bind Party. Each signatory to this Covenant certifies that he or she is fully authorized by the party he or she represents to enter into this Covenant, to execute it on behalf of the party represented and legally to bind that party.

IN WITNESS WHEREOF, the undersigned have duly executed this Covenant as of the day and the year first hereinabove set forth.

GRANITE MANAGEMENT  
CORPORATION, a Delaware corporation

By \_\_\_\_\_  
Printed Name: \_\_\_\_\_  
Its: \_\_\_\_\_  
Title

CITY OF BENICIA

By: \_\_\_\_\_  
Printed Name: \_\_\_\_\_  
Its \_\_\_\_\_  
Title

ATTEST:

\_\_\_\_\_  
City Clerk

APPROVED AS TO FORM:

\_\_\_\_\_  
City Attorney

FN PROJECTS, INC., a California  
corporation

By \_\_\_\_\_  
Printed Name: \_\_\_\_\_  
Its: \_\_\_\_\_  
Title

DEPARTMENT OF TOXIC  
SUBSTANCES CONTROL

By: \_\_\_\_\_  
Printed Name: \_\_\_\_\_  
Its \_\_\_\_\_  
Title

STATE OF \_\_\_\_\_

COUNTY OF \_\_\_\_\_

On \_\_\_\_\_ before me, \_\_\_\_\_,  
Name and Title of Officer

personally appeared \_\_\_\_\_,  
Name(s) of Signer(s)

\_\_\_ personally known to me -or- \_\_\_ proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s) or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

\_\_\_\_\_  
Signature of Notary Public.

[SEAL]

STATE OF \_\_\_\_\_

COUNTY OF \_\_\_\_\_

On \_\_\_\_\_ before me, \_\_\_\_\_,  
Name and Title of Officer

personally appeared \_\_\_\_\_,  
Name(s) of Signer(s)

\_\_\_ personally known to me -or- \_\_\_ proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s) or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

\_\_\_\_\_  
Signature of Notary Public.

[SEAL]

STATE OF \_\_\_\_\_

COUNTY OF \_\_\_\_\_

On \_\_\_\_\_ before me, \_\_\_\_\_,  
Name and Title of Officer

personally appeared \_\_\_\_\_,  
Name(s) of Signer(s)

\_\_\_ personally known to me -or- \_\_\_ proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s) or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

\_\_\_\_\_  
Signature of Notary Public.

[SEAL]

STATE OF \_\_\_\_\_

COUNTY OF \_\_\_\_\_

On \_\_\_\_\_ before me, \_\_\_\_\_,  
Name and Title of Officer

personally appeared \_\_\_\_\_,  
Name(s) of Signer(s)

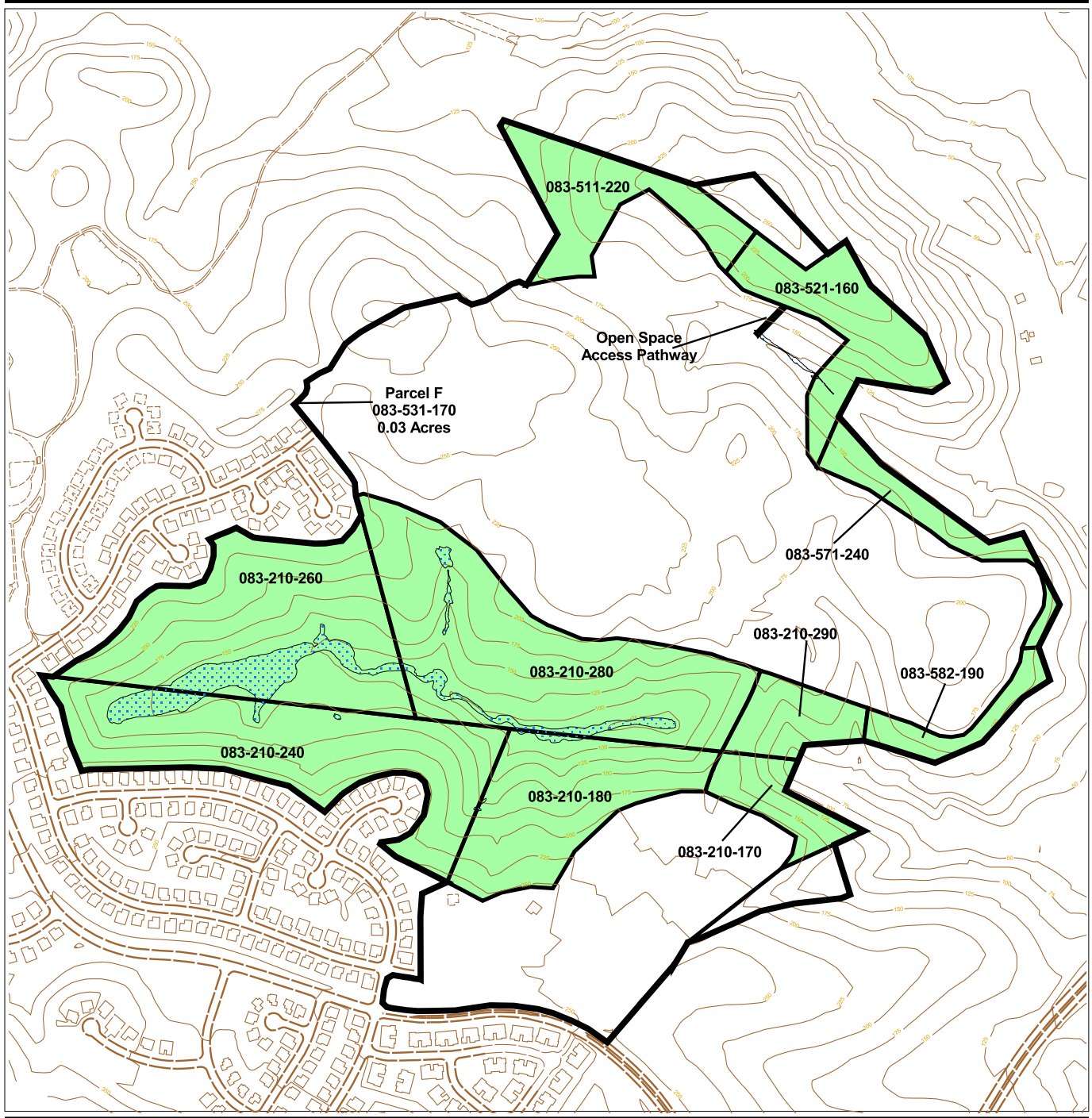
\_\_\_ personally known to me -or- \_\_\_ proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s) or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

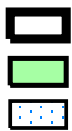
\_\_\_\_\_  
Signature of Notary Public.

[SEAL]

u:\data\chobencal\arcview\project\Granite\_RDD\_June.apr\Figure4-6RDD May 2001



## EXPLANATION



Project Site Boundary  
Restricted Open Space  
Wetlands

### Planimetric features



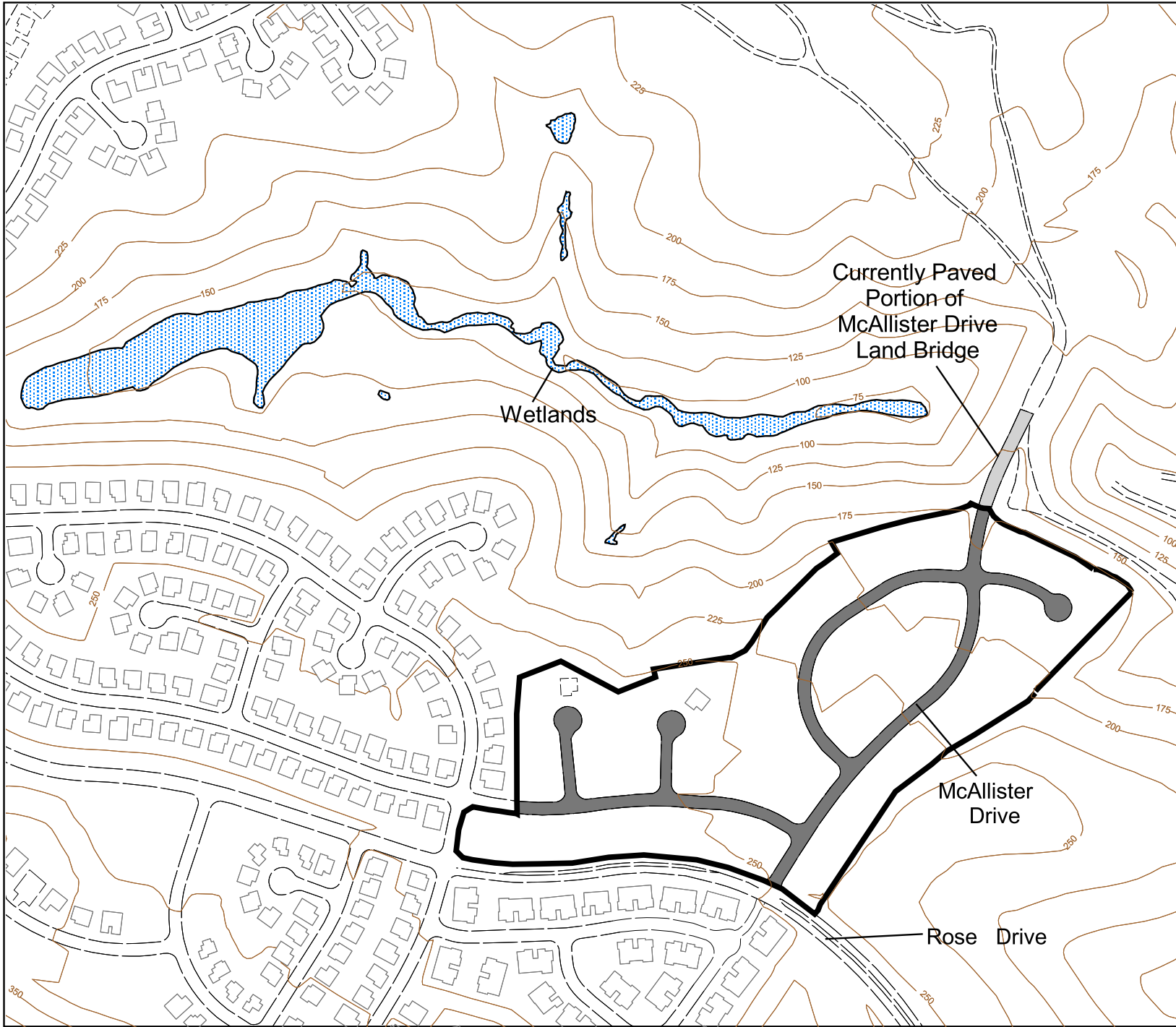
Roads  
25 Foot Contour

Note: This figure is to be used for Planning use only. Legal delineation of parcels of said project area are located in other documents.

350 0 350 700 Feet



## Exhibit A Restricted Open Space



**Explanation**

Limits of 81 D-1 Lots

**Planimetric features**

Roads/Trails

25 Foot Contour

Paved Roads, Sidewalks, Curbs, and Gutters

Wetlands

\\2714\data\cityofbenicia\arcview\projects\001\_april-13-01\_D-1 Paved Roads

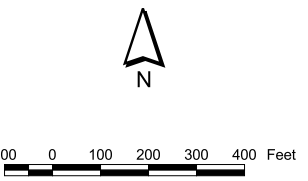


Exhibit B

Restricted Paved Areas

Tourtlot Cleanup Project  
Benicia, California

## Exhibit C

Under Section 220-S of the 1998 California Building Code, a “Structure” is that which is built or constructed, an edifice or building of any kind, or any piece of work artificially built up or composed of parts joined together in some definite manner.

## **APPENDIX C**

### **AGENCY CORRESPONDENCE**

**Includes:**

**Correspondence from U.S. Fish and Wildlife Service (February 28, 2000)**  
**Important Information About Your Species List**  
**Guidelines for Conducting and Reporting Botanical Inventories for**  
**Federally listed, Proposed, and Candidate Plants (September 23, 1996)**  
**Endangered and Threatened Species that May Occur in or be Affected**  
**by Projects in Solano County, California (February 28, 2000)**  
**Endangered and Threatened Species that May Occur in or be Affected**  
**by Projects in Selected Quads (February 28, 2000)**  
**California Department of Fish and Game Natural Diversity Data Base**  
**(revised April 6, 1999)**





# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office  
2800 Cottage Way, Room W-2605  
Sacramento, California 95825-1846

IN REPLY REFER TO

1-1-00-SP-1019

February 28, 2000

Jesse D'Elia, Biologist  
Earth Tech  
1461 E. Cooley Drive  
Suite 100  
Colton, California 92305

Subject: Species List for Tourtelot Cleanup Project. Former Benicia Arsenal,  
Benicia, Solano County, California

Dear Mr. D'Elia:

We are sending the enclosed list in response to your February 24 2000, request for information about endangered and threatened species (Enclosure A). The list covers the following U.S. Geological Survey 7½ minute quad or quads: Benicia Quad.

Please read *Important Information About Your Species List* (enclosed). It explains how we made the list and describes your responsibilities under the Endangered Species Act. Please contact Harry Mossman, Biological Technician, at (916) 414-6650, if you have any questions about the attached list or your responsibilities under the Endangered Species Act. For the fastest response to species list requests, address them to the attention of Mr. Mossman at this address. You may fax requests to him at 414-6710 or 6711.

Sincerely,

For Karen J. Miller  
Chief, Endangered Species Division

Enclosures

# Important Information About Your Species List

## How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute *quads*. The United States is divided into these quads, which are about the size of San Francisco. If you requested your list by quad name or number, that is what we used. Otherwise, we used the information you sent us to determine which quad or quads to use.

## Animals

The animals on your species list are ones that occur within, *or may be affected by projects within*, the quads covered by the list. Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.

## Plants

Any plants on your list are ones *that have actually been observed* in the quad or quads covered by the list. We have also included either a county species list or a list of species in nearby quads. We recommend that you check your project area for these plants. Plants may exist in an area without ever having been detected there.

## Surveying

Some of the species on your list may not be affected by your project. A trained biologist or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. For plant surveys, we recommend using the enclosed *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Species*. The results of your surveys should be published in any environmental documents prepared for your project.

## State-Listed Species

If a species has been listed as threatened or endangered by the State of California, but not by us nor by the National Marine Fisheries Service, it will appear on your list as a Species of Concern. *However you should contact the California Department of Fish and Game for official information about these species.* Call (916) 322-2493 or write Marketing Manager, California Department of Fish and Game, Natural Diversity Data Base, 1416 Ninth Street, Sacramento, California 95814.

## Your Responsibilities Under the Endangered Species Act

All plants and animals identified as *listed* on Enclosure A are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the *take* of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt,

shoot, wound, kill, trap, capture, or collect" any such animal. Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a *formal consultation* with the Service. Such consultation would result in a *biological opinion* addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an *incidental take permit*. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project. Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that mitigates for the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the mitigation plan in any environmental documents you file.

## Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as *critical habitat*. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Maps and boundary descriptions of the critical habitat may be found in the *Federal Register*. The information is also reprinted in the *Code of Federal Regulations* (50 CFR 17.95).

## Candidate Species

We recommend that you address impacts to *candidate* species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Your list may contain a section called *Species of Concern*. This term includes former *category 2 candidate species* and other plants and animals of concern to the Service and other Federal, State and private conservation agencies and organizations. Some of these species may become candidate species in the future.

## **Wetlands**

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

## **Updates**

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed, candidate and special concern species in your planning, this should not be a problem. We also continually strive to make our information as accurate as possible. Sometimes we learn that a particular species has a different range than we thought. This should not be a problem if you consider the species on the county or surrounding-quad lists that we have enclosed. If you have a long-term project or if your project is delayed, please feel free to contact us about getting a current list. You can also find out the current status of a species by going to the Service's Internet page: [www.fws.gov](http://www.fws.gov)

**GUIDELINES FOR CONDUCTING AND REPORTING BOTANICAL INVENTORIES  
FOR FEDERALLY LISTED, PROPOSED AND CANDIDATE PLANTS  
(September 23, 1996)**

These guidelines describe protocols for conducting botanical inventories for federally listed, proposed and candidate plants, and describe minimum standards for reporting results. The Service will use, in part, the information outlined below in determining whether the project under consideration may affect any listed, proposed or candidate plants, and in determining the direct, indirect, and cumulative effects.

Field inventories should be conducted in a manner that will locate listed, proposed, or candidate species (target species) that may be present. The entire project area requires a botanical inventory, except developed agricultural lands. The field investigator(s) should:

1. Conduct inventories at the appropriate times of year when target species are present and identifiable. Inventories will include all potential habitats. Multiple site visits during a field season may be necessary to make observations during the appropriate phenological stage of all target species.
2. If available, use a regional or local reference population to obtain a visual image of the target species and associated habitat(s). If access to reference populations is not available, investigators should study specimens from local herbaria.
3. List every species observed and compile a comprehensive list of vascular plants for the entire project site. Vascular plants need to be identified to a taxonomic level which allows rarity to be determined.
4. Report results of botanical field inventories that include:
  - a. a description of the biological setting, including plant community, topography, soils, potential habitat of target species, and an evaluation of environmental conditions, such as timing or quantity of rainfall, which may influence the performance and expression of target species.
  - b. a map of project location showing scale, orientation, project boundaries, parcel size, and map quadrangle name.
  - c. survey dates and survey methodology(ies).
  - d. if a reference population is available, provide a written narrative describing the target species reference population(s) used, and date(s) when observations were made.
  - e. a comprehensive list of all vascular plants occurring on the project site for each habitat type.
  - f. current and historic land uses of the habitat(s) and degree of site alteration.
  - g. presence of target species off-site on adjacent parcels, if known.

- h. an assessment of the biological significance or ecological quality of the project site in a local and regional context.
5. If target species is(are) found, report results that additionally include:
- a. a map showing federally listed, proposed and candidate species distribution as they relate to the proposed project.
  - b. if target species is (are) associated with wetlands, a description of the direction and integrity of flow of surface hydrology. If target species is (are) affected by adjacent off-site hydrological influences, describe these factors.
  - c. the target species phenology and microhabitat, an estimate of the number of individuals of each target species per unit area; identify areas of high, medium and low density of target species over the project site, and provide acres of occupied habitat of target species. Investigators could provide color slides, photos or color copies of photos of target species or representative habitats to support information or descriptions contained in reports.
  - d. the degree of impact(s), if any, of the proposed project as it relates to the potential unoccupied habitat of target habitat.
6. Document findings of target species by completing California Native Species Field Survey Form(s) and submit form(s) to the Natural Diversity Data Base. Documentation of determinations and/or voucher specimens may be useful in cases of taxonomic ambiguities, habitat or range extensions.
7. Report as an addendum to the original survey, any change in abundance and distribution of target plants in subsequent years. Project sites with inventories older than three years from the current date of project proposal submission will likely need additional survey. Investigators need to assess whether an additional survey(s) is (are) needed.
8. Adverse conditions may prevent investigator(s) from determining presence or identifying some target species in potential habitat(s) of target species. Disease, drought, predation, or herbivory may preclude the presence or identification of target species in any year. An additional botanical inventory(ies) in a subsequent year(s) may be required if adverse conditions occur in a potential habitat(s). Investigator(s) may need to discuss such conditions.
9. Guidance from California Department of Fish and Game (CDFG) regarding plant and plant community surveys can be found in Guidelines for Assessing the Effects of Proposed Developments on Rare and Endangered Plants and Plant Communities, 1984. Please contact the CDFG Regional Office for questions regarding the CDFG guidelines and for assistance in determining any applicable State regulatory requirements.

## ENCLOSURE A

Endangered and Threatened Species that May Occur in or be Affected by  
Projects in SOLANO COUNTY, California  
Reference File No. 1-1-00-SP-1019  
February 28, 2000

### Listed Species

#### Mammals

salt marsh harvest mouse, *Reithrodontomys raviventris* (E)

#### Birds

California brown pelican, *Pelecanus occidentalis californicus* (E)

California clapper rail, *Rallus longirostris obsoletus* (E)

Aleutian Canada goose, *Branta canadensis leucopareia* (T)

western snowy plover, *Charadrius alexandrinus nivosus* (T)

bald eagle, *Haliaeetus leucocephalus* (T)

#### Reptiles

giant garter snake, *Thamnophis gigas* (T)

#### Amphibians

California red-legged frog, *Rana aurora draytonii* (T)

#### Fish

Critical habitat, winter-run chinook salmon, *Oncorhynchus tshawytscha* (E)

winter-run chinook salmon, *Oncorhynchus tshawytscha* (E)

Critical habitat, delta smelt, *Hypomesus transpacificus* (T)

delta smelt, *Hypomesus transpacificus* (T)

Central Valley steelhead, *Oncorhynchus mykiss* (T)

Central Valley spring-run chinook salmon, *Oncorhynchus tshawytscha* (T)

Sacramento splittail, *Pogonichthys macrolepidotus* (T)

#### Invertebrates

Conservancy fairy shrimp, *Branchinecta conservatio* (E)

vernal pool tadpole shrimp, *Lepidurus packardii* (E)

callippe silverspot butterfly, *Speyeria callippe callippe* (E)

vernal pool fairy shrimp, *Branchinecta lynchi* (T)

valley elderberry longhorn beetle, *Desmocerus californicus dimorphus* (T)

Critical habitat, delta green ground beetle, *Elaphrus viridis* (T)

delta green ground beetle, *Elaphrus viridis* (T)

#### Plants

Suisun thistle, *Cirsium hydrophilum* var. *hydrophilum* (E)

salt marsh bird's-beak, *Cordylanthus maritimus* ssp. *maritimus* (E)

soft bird's-beak, *Cordylanthus mollis* ssp. *mollis* (E)

Contra Costa goldfields, *Lasthenia conjugens* (E)

Solano grass, *Tuctoria mucronata* (E)

Colusa grass, *Neostapfia colusana* (T)  
 showy Indian clover, *Trifolium amoenum* (E) \*

### **Proposed Species**

#### **Mammals**

riparian (San Joaquin Valley) woodrat, *Neotoma fuscipes riparia* (PE) \*  
 riparian brush rabbit, *Sylvilagus bachmani riparius* (PE) \*

#### **Birds**

mountain plover, *Charadrius montanus* (PT)

#### **Fish**

Critical Habitat, Central Valley spring-run chinook, *Oncorhynchus tshawytscha* (PX)

### **Candidate Species**

#### **Amphibians**

California tiger salamander, *Ambystoma californiense* (C)

#### **Fish**

Central Valley fall/late fall-run chinook salmon, *Oncorhynchus tshawytscha* (C)

### **Species of Concern**

#### **Mammals**

Pacific western big-eared bat, *Corynorhinus (=Plecotus) townsendii townsendii* (SC)  
 greater western mastiff-bat, *Eumops perotis californicus* (SC)  
 small-footed myotis bat, *Myotis ciliolabrum* (SC)  
 long-eared myotis bat, *Myotis evotis* (SC)  
 fringed myotis bat, *Myotis thysanodes* (SC)  
 long-legged myotis bat, *Myotis volans* (SC)  
 Yuma myotis bat, *Myotis yumanensis* (SC)  
 San Francisco dusky-footed woodrat, *Neotoma fuscipes annectens* (SC)  
 San Joaquin pocket mouse, *Perognathus inornatus* (SC)  
 Suisun ornate shrew, *Sorex ornatus sinuosus* (SC)

#### **Birds**

Swainson's hawk, *Buteo Swainsoni* (CA)  
 little willow flycatcher, *Empidonax traillii brewsteri* (CA)  
 black rail, *Laterallus jamaicensis coturniculus* (CA)  
 bank swallow, *Riparia riparia* (CA)  
 American peregrine falcon, *Falco peregrinus anatum* (D)  
 grasshopper sparrow, *Ammodramus savannarum* (SC)  
 short-eared owl, *Asio flammeus* (SC)  
 western burrowing owl, *Athene cunicularia hypugea* (SC)  
 American bittern, *Botaurus lentiginosus* (SC)  
 ferruginous hawk, *Buteo regalis* (SC)  
 Vaux's swift, *Chaetura vauxi* (SC)  
 lark sparrow, *Chondestes grammacus* (SC)

olive-sided flycatcher, *Contopus cooperi* (SC)  
white-tailed (=black shouldered) kite, *Elanus leucurus* (SC)  
Pacific-slope flycatcher, *Empidonax difficilis* (SC)  
common loon, *Gavia immer* (SC)  
saltmarsh common yellowthroat, *Geothlypis trichas sinuosa* (SC)  
loggerhead shrike, *Lanius ludovicianus* (SC)  
Suisun song sparrow, *Melospiza melodia maxillaris* (SC)  
San Pablo song sparrow, *Melospiza melodia samuelis* (SC)  
long-billed curlew, *Numenius americanus* (SC)  
white-faced ibis, *Plegadis chihi* (SC)  
rufous hummingbird, *Selasphorus rufus* (SC)  
Allen's hummingbird, *Selasphorus sasin* (SC)  
Bewick's wren, *Thryomanes bewickii* (SC)  
California Thrasher, *Toxostoma redivivum* (SC)

#### Reptiles

silvery legless lizard, *Anniella pulchra pulchra* (SC)  
northwestern pond turtle, *Clemmys marmorata marmorata* (SC)  
southwestern pond turtle, *Clemmys marmorata pallida* (SC)  
California horned lizard, *Phrynosoma coronatum frontale* (SC)

#### Amphibians

foothill yellow-legged frog, *Rana boylei* (SC)  
western spadefoot toad, *Scaphiopus hammondi* (SC)

#### Fish

green sturgeon, *Acipenser medirostris* (SC)  
river lamprey, *Lampetra ayresi* (SC)  
Pacific lamprey, *Lampetra tridentata* (SC)  
longfin smelt, *Spirinchus thaleichthys* (SC)

#### Invertebrates

Antioch Dunes anthicid beetle, *Anthicus antiochensis* (SC)  
Sacramento anthicid beetle, *Anthicus sacramento* (SC)  
San Joaquin dune beetle, *Coelus gracilis* (SC)  
Ricksecker's water scavenger beetle, *Hydrochara rickseckeri* (SC)  
California linderiella, *Linderiella occidentalis* (SC)  
San Francisco lacewing, *Nothochrysa californica* (SC)

#### Plants

Suisun Marsh aster, *Aster lentus* (SC)  
alkali milk-vetch, *Astragalus tener* var. *tener* (SC)  
heartscale, *Atriplex cordulata* (SC)  
brittlescale, *Atriplex depressa* (SC)  
valley spearscale, *Atriplex joaquiniana* (SC)  
hispid bird's-beak, *Cordylanthus mollis* ssp. *hispidus* (SC)

recurved larkspur, *Delphinium recurvatum* (SC)  
 fragrant fritillary, *Fritillaria liliacea* (SC)  
 adobe lily, *Fritillaria pluriflora* (SC)  
 Brewer's dwarf-flax, *Hesperolinon breweri* (SC)  
 Carquinez goldenbush, *Isocoma arguta* (SC)  
 delta tule-pea, *Lathyrus jepsonii* var. *jepsonii* (SC)  
 legenere, *Legenere limosa* (SC)  
 Mason's lilaeopsis, *Lilaeopsis masonii* (SC)  
 little mousetail, *Myosurus minimus* ssp. *apus* (SC)  
 Gairdner's yampah, *Perideridia gairdneri* ssp. *gairdneri* (SC)  
 Ferris's milk-vetch, *Astragalus tener* var. *ferrisiae* (SC) \*  
 pappose spikeweed, *Hemizonia parryi* ssp. *congdonii* (SC) \*  
 Northern California black walnut, *Juglans californica* var. *hindsii* (SC) \*

## KEY:

(E)	<i>Endangered</i>	Listed (in the Federal Register) as being in danger of extinction.
(T)	<i>Threatened</i>	Listed as likely to become endangered within the foreseeable future.
(P)	<i>Proposed</i>	Officially proposed (in the Federal Register) for listing as endangered or threatened.
(PX)	<i>Proposed</i>	Proposed as an area essential to the conservation of the species.
	<i>Critical Habitat</i>	
(C)	<i>Candidate</i>	Candidate to become a <i>proposed</i> species.
(SC)	<i>Species of Concern</i>	Other species of concern to the Service.
(D)	<i>Delisted</i>	Delisted. Status to be monitored for 5 years.
(CA)	<i>State-Listed</i>	Listed as threatened or endangered by the State of California.
*	<i>Extirpated</i>	Possibly extirpated from the area.
**	<i>Extinct</i>	Possibly extinct
	<i>Critical Habitat</i>	Area essential to the conservation of a species.

## ENCLOSURE A

Endangered and Threatened Species that May Occur in  
or be Affected by Projects in the Selected Quads Listed Below

Reference File No. 1-1-00-SP-1019

February 28, 2000

QUAD : 482C BENICIA

### Listed Species

#### Mammals

salt marsh harvest mouse, *Reithrodontomys raviventris* (E)

#### Birds

western snowy plover, *Charadrius alexandrinus nivosus* (T)

bald eagle, *Haliaeetus leucocephalus* (T)

California brown pelican, *Pelecanus occidentalis californicus* (E)

California clapper rail, *Rallus longirostris obsoletus* (E)

#### Reptiles

Alameda whipsnake, *Masticophis lateralis euryxanthus* (T)

giant garter snake, *Thamnophis gigas* (T)

#### Amphibians

California red-legged frog, *Rana aurora draytonii* (T)

#### Fish

Critical habitat, delta smelt, *Hypomesus transpacificus* (T)

delta smelt, *Hypomesus transpacificus* (T)

Central Valley steelhead, *Oncorhynchus mykiss* (T)

Critical habitat, winter-run chinook salmon, *Oncorhynchus tshawytscha* (E)

winter-run chinook salmon, *Oncorhynchus tshawytscha* (E)

Central Valley spring-run chinook salmon, *Oncorhynchus tshawytscha* (T)

Sacramento splittail, *Pogonichthys macrolepidotus* (T)

#### Invertebrates

vernal pool fairy shrimp, *Branchinecta lynchi* (T)

callippe silverspot butterfly, *Speyeria callippe callippe* (E)

California freshwater shrimp, *Syncaris pacifica* (E)

#### Plants

soft bird's-beak, *Cordylanthus mollis ssp. mollis* (E)

### Proposed Species

#### Mammals

riparian (San Joaquin Valley) woodrat, *Neotoma fuscipes riparia* (PE) \*

## Fish

Critical Habitat, Central Valley spring-run chinook, *Oncorhynchus tshawytscha* (PX)

**Candidate Species**

## Amphibians

California tiger salamander, *Ambystoma californiense* (C)

## Fish

Central Valley fall/late fall-run chinook salmon, *Oncorhynchus tshawytscha* (C)

**Species of Concern**

## Mammals

Pacific western big-eared bat, *Corynorhinus (=Plecotus) townsendii townsendii* (SC)

greater western mastiff-bat, *Eumops perotis californicus* (SC)

long-eared myotis bat, *Myotis evotis* (SC)

fringed myotis bat, *Myotis thysanodes* (SC)

long-legged myotis bat, *Myotis volans* (SC)

Yuma myotis bat, *Myotis yumanensis* (SC)

San Francisco dusky-footed woodrat, *Neotoma fuscipes annectens* (SC)

San Joaquin pocket mouse, *Perognathus inornatus* (SC)

## Birds

tricolored blackbird, *Agelaius tricolor* (SC)

western burrowing owl, *Athene cunicularia hypugea* (SC)

ferruginous hawk, *Buteo regalis* (SC)

little willow flycatcher, *Empidonax traillii brewsteri* (CA)

American peregrine falcon, *Falco peregrinus anatum* (D)

saltmarsh common yellowthroat, *Geothlypis trichas sinuosa* (SC)

black rail, *Laterallus jamaicensis coturniculus* (CA)

Suisun song sparrow, *Melospiza melodia maxillaris* (SC)

San Pablo song sparrow, *Melospiza melodia samuelis* (SC)

## Reptiles

northwestern pond turtle, *Clemmys marmorata marmorata* (SC)

southwestern pond turtle, *Clemmys marmorata pallida* (SC)

California horned lizard, *Phrynosoma coronatum frontale* (SC)

## Amphibians

foothill yellow-legged frog, *Rana boylei* (SC)

western spadefoot toad, *Scaphiopus hammondi* (SC)

## Fish

green sturgeon, *Acipenser medirostris* (SC)

river lamprey, *Lampetra ayresi* (SC)

Pacific lamprey, *Lampetra tridentata* (SC)

longfin smelt, *Spirinchus thaleichthys* (SC)

## Invertebrates

Ricksecker's water scavenger beetle, *Hydrochara rickseckeri* (SC)

California linderiella, *Linderiella occidentalis* (SC)

San Francisco lacewing, *Nothochrysa californica* (SC)

## Plants

Suisun Marsh aster, *Aster lentus* (SC)

Diablo helianthella (=rock-rose), *Helianthella castanea* (SC)

pappose spikeweed, *Hemizonia parryi* ssp. *congdonii* (SC) \*

delta tule-pea, *Lathyrus jepsonii* var. *jepsonii* (SC)

## KEY:

(E)	<i>Endangered</i>	Listed (in the Federal Register) as being in danger of extinction.
(T)	<i>Threatened</i>	Listed as likely to become endangered within the foreseeable future.
(P)	<i>Proposed</i>	Officially proposed (in the Federal Register) for listing as endangered or threatened.
(PX)	<i>Proposed</i>	Proposed as an area essential to the conservation of the species.
	<i>Critical Habitat</i>	
(C)	<i>Candidate</i>	Candidate to become a <i>proposed</i> species.
(SC)	<i>Species of Concern</i>	May be endangered or threatened. Not enough biological information has been gathered to support listing at this time.
(D)	<i>Delisted</i>	Delisted. Status to be monitored for 5 years.
(CA)	<i>State-Listed</i>	Listed as threatened or endangered by the State of California.
(*)	<i>Extirpated</i>	Possibly extirpated from this quad.
(**)	<i>Extinct</i>	Possibly extinct.
	<i>Critical Habitat</i>	Area essential to the conservation of a species.



# California Department of Fish and Game

## Natural Diversity Database

For information about these species or natural communities, or other species or natural communities, or for staff contacts, please see the NDDDB website at <http://www.dfg.ca.gov/whdab/cnddb.htm>

### IMPORTANT NOTICE:

This list of species was produced from data presently included in the California Natural Diversity Database (CNDDDB). The CNDDDB is a positive sighting data base, and our data sets can not be considered to be complete for every species in every county. Therefore, this list must not be considered to be a comprehensive list of all special status species in the county.

### Special Status Plants, Animals and Natural Communities of SOLANO COUNTY

Scientific Name	Common Name	STATUS*: (see footnotes)			
		Federal	California	CDFG	CNPS
<b>Vascular Plants</b>					
<i>Aster lentus</i>	SUISUN MARSH ASTER	Species of concern	None		1B
<i>Astragalus tener</i> var <i>ferrisiae</i>	FERRIS'S MILK-VETCH	Species of concern	None		1B
<i>Astragalus tener</i> var <i>tener</i>	ALKALI MILK-VETCH	None	None		1B
<i>Atriplex cordulata</i>	HEARTSCALE	Species of concern	None		1B
<i>Atriplex depressa</i>	BRITTLESCALE	None	None		1B
<i>Atriplex joaquiniana</i>	SAN JOAQUIN SALT BUSH	Species of concern	None		1B
<i>Atriplex persistens</i>	PERSISTENT-FRUITED SALTSCALE	None	None		
<i>Balsamorhiza macrolepis</i> var <i>macrolepis</i>	BIG-SCALE BALSAMROOT	None	None		1B
<i>Cirsium hydrophilum</i> var <i>hydrophilum</i>	SUISUN THISTLE	Endangered	None		1B
<i>Cordylanthus mollis</i> ssp <i>hispidus</i>	HISPID BIRD'S-BEAK	Species of concern	None		1B
<i>Cordylanthus mollis</i> ssp <i>mollis</i>	SOFT BIRD'S-BEAK	Endangered	Rare		1B
<i>Delphinium recurvatum</i>	RECURVED LARKSPUR	Species of concern	None		1B
<i>Downingia pusilla</i>	DWARF DOWNINGIA	None	None		2
<i>Fritillaria liliacea</i>	FRAGRANT FRITILLARY	Species of concern	None		1B
<i>Gratiola heterosepala</i>	BOGGS LAKE HEDGE-HYSSOP	None	Endangered		1B
<i>Hemizonia parryi</i> ssp <i>congdonii</i>	CONGDON'S TARPLANT	Species of concern	None		1B
<i>Hesperolinon breweri</i>	BREWER'S WESTERN FLAX	Species of concern	None		1B
<i>Hibiscus lasiocarpus</i>	ROSE-MALLOW	None	None		2
<i>Isocoma arguta</i>	CARQUINEZ GOLDENBUSH	Species of concern	None		1B
<i>Juglans hindsii</i>	NORTHERN CALIFORNIA BLACK WALNUT	Species of concern	None		1B
<i>Lasthenia conjugens</i>	CONTRA COSTA GOLDFIELDS	Endangered	None		1B
<i>Lathyrus jepsonii</i> var <i>jepsonii</i>	DELTA TULE PEA	Species of concern	None		1B
<i>Legenere limosa</i>	LEGENERE	Species of concern	None		1B
<i>Lepidium latipes</i> var <i>heckardii</i>	HECKARD'S PEPPER-GRASS	None	None		1B
<i>Lilaeopsis masonii</i>	MASON'S LILAEOPSIS	Species of concern	Rare		1B
<i>Limosella subulata</i>	DELTA MUDWORT	None	None		2
<i>Navarretia leucocephala</i> ssp <i>bakeri</i>	BAKER'S NAVARRETIA	None	None		1B
<i>Neostapfia colusana</i>	COLUSA GRASS	Threatened	Endangered		1B
<i>Senecio aphanactis</i>	RAYLESS RAGWORT	None	None		2
<i>Trifolium amoenum</i>	SHOWY INDIAN CLOVER	Endangered	None		1B
<i>Tuctoria mucronata</i>	CRAMPTON'S TUCTORIA	Endangered	Endangered		1B
<b>Crustaceans</b>					
<i>Branchinecta conservatio</i>	CONSERVANCY FAIRY SHRIMP	Endangered	None		
<i>Branchinecta lynchi</i>	VERNAL POOL FAIRY SHRIMP	Threatened	None		
<i>Lepidurus packardii</i>	VERNAL POOL TADPOLE SHRIMP	Endangered	None		
<i>Linderella occidentalis</i>	CALIFORNIA LINDERIELLA	None	None		
<b>Beetles</b>					
<i>Anthicus sacramento</i>	SACRAMENTO ANTHICID BEETLE	Species of concern	None		
<i>Desmocerus californicus dimorphus</i>	VALLEY ELDERBERRY LONGHORN BEETLE	Threatened	None		
<i>Elaphrus viridis</i>	DELTA GREEN GROUND BEETLE	Threatened	None		

**Special Status Plants, Animals and Natural Communities of  
SOLANO COUNTY**

Scientific Name	Common Name	STATUS*: (see footnotes)			
		Federal	California	CDFG	CNPS
<b>Beetles</b>					
<i>Hydrochara nickseckeri</i>	RICKSECKER'S WATER SCAVENGER BEETLE	Species of concern	None		
<b>Butterflies and Moths</b>					
<i>Danaus plexippus</i>	MONARCH BUTTERFLY	None	None		
<b>Fish</b>					
<i>Hypomesus transpacificus</i>	DELTA SMELT	Threatened	Threatened		
<i>Pogonichthys macrolepidotus</i>	SACRAMENTO SPLITTAIL	Threatened	None		SC
<b>Amphibians</b>					
<i>Ambystoma californiense</i>	CALIFORNIA TIGER SALAMANDER	Candidate	None		SC
<i>Rana aurora draytonii</i>	CALIFORNIA RED-LEGGED FROG	Threatened	None		SC
<b>Reptiles</b>					
<i>Clemmys marmorata</i>	WESTERN POND TURTLE	Species of concern	None		SC
<i>Clemmys marmorata marmorata</i>	NORTHWESTERN POND TURTLE	Species of concern	None		SC
<i>Thamnophis gigas</i>	GIANT GARTER SNAKE	Threatened	Threatened		
<b>Birds</b>					
<i>Agelaius tricolor</i> (nesting colony)	TRICOLORED BLACKBIRD	Species of concern	None		SC
<i>Aquila chrysaetos</i> (nesting and wintering)	GOLDEN EAGLE	None	None		SC
<i>Ardea alba</i>	GREAT EGRET	None	None		
<i>Ardea herodias</i> (rookery)	GREAT BLUE HERON	None	None		
<i>Asio flammeus</i> (nesting)	SHORT-EARED OWL	None	None		SC
<i>Athene cucularia</i> (burrow sites)	BURROWING OWL	Species of concern	None		SC
<i>Buteo swainsoni</i> (nesting)	SWAINSON'S HAWK	None	Threatened		
<i>Elanus leucurus</i> (nesting)	WHITE-TAILED KITE	None	None		
<i>Geothlypis trichas sinuosa</i>	SALTMARSH COMMON YELLOWTHROAT	Species of concern	None		SC
<i>Icteria virens</i> (nesting)	YELLOW-BREASTED CHAT	None	None		SC
<i>Laterallus jamaicensis coturniculus</i>	CALIFORNIA BLACK RAIL	Species of concern	Threatened		
<i>Melospiza melodia maxillaris</i>	SUISUN SONG SPARROW	Species of concern	None		SC
<i>Pandion haliaetus</i> (nesting)	OSPREY	None	None		SC
<i>Rallus longirostris obsoletus</i>	CALIFORNIA CLAPPER RAIL	Endangered	Endangered		
<i>Sterna caspia</i> (nesting colony)	CASPIAN TERN	None	None		
<b>Mammals</b>					
<i>Reithrodontomys raviventris</i>	SALT-MARSH HARVEST MOUSE	Endangered	Endangered		
<i>Sorex ornatus sinuosus</i>	SUISUN SHREW	Species of concern	None		SC
<b>Natural Communities</b>					
Coastal and valley freshwater marsh	N.A.	None	None		
Coastal brackish marsh	N.A.	None	None		
Northern claypan vernal pool	N.A.	None	None		
Northern coastal salt marsh	N.A.	None	None		
Valley needlegrass grassland	N.A.	None	None		

## **APPENDIX D**

### **BIOLOGICAL RESOURCES INFORMATION**

**Includes:**

**Special-status Species Codes**

**Table D-1. Plant and Animal Species Observed on the Project Site**

**Table D-2. Special-status Species that may Occur in or be Affected by  
Projects in the Benicia Quadrangle**



## SPECIAL-STATUS SPECIES CODES

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### ENDANGERED SPECIES ACT (ESA) LISTING CODES:

FE	Federally listed as Endangered
FT	Federally listed as Threatened
FPE	Federally proposed for listing as Endangered
FPT	Federally proposed for listing as Threatened
FPD	Federally proposed for delisting
FD	Federally delisted. Status to be monitored for 5 years
FC	Federal candidate species (former Category 1 candidates)
FSC	Federal species of concern

### CALIFORNIA ENDANGERED SPECIES ACT (CESA) LISTING CODES:

SE	State-listed as Endangered
ST	State-listed as Threatened
SCE	State candidate for listing as Endangered
SCT	State candidate for listing as Threatened
SR	State-listed as Rare

**CALIFORNIA NATURAL DIVERSITY DATABASE (CNDDDB) RANKS:** The CNDDDB ranking codes are shorthand formulas that provides information on how rare a taxa is, both throughout its entire range and within California.

**Global Ranks:** Worldwide status of a *full species*: G1 to G5:

- G1 Extremely endangered: <6 viable occurrences (EOs) or <1,000 individuals, or <2,000 acres of occupied habitat
- G2 Endangered: about 6-20 EOs, or 1,000 - 3,000 individuals, or 2,000 to 10,000 acres of occupied habitat
- G3 Restricted range, rare: about 21-100 EOs, or 3,000-10,000 individuals, or 10,000-50,000 acres of occupied habitat
- G4 Apparently secure: some factors exist to cause some concern such as narrow habitat or continuing threats
- G5 Demonstrably secure: commonly found throughout its historic range.

**State Ranks for Plants:** The *state rank* (S-rank) is assigned much the same way as the global rank, except state ranks in California often also contain a threat designation attached to the S-rank.

## SPECIAL-STATUS SPECIES CODES

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- S1** Less than 6 EOs OR less than 1,000 individuals OR less than 2,000 acres  
S1.1 very threatened  
S1.2 threatened  
S1.3 no current threats known  
**S2** 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres  
S2.1 very threatened  
S2.2 threatened  
S2.3 no current threats known  
**S3** 21-100 EOs or 3,000-10,000 individuals OR 10,000-50,000 acres  
S3.1 very threatened  
S3.2 threatened  
S3.3 no current threats known  
**S4** Apparently secure within California; this rank is clearly lower than S3 but factors exist to cause some concern; i.e., there is some threat, or somewhat narrow habitat. NO THREAT RANK.  
**S5** Demonstrably secure to ineradicable in California. NO THREAT RANK.

**State Ranks for Animals:** Statewide status of a *full species or a subspecies*: S1 to S5. Same general definitions as global ranks, but just for the range of the taxa within California.

**T- Ranks:** Status of a *subspecies*: T1 to T5 - A subspecies is given a T-rank. This is attached to the G-rank for the full species. The S-rank, in this case, will refer to the status of the subspecies within California. The T-rank has the same general definitions as the global ranks.

#### Other Notations:

- G1G3 Proper rank is most likely within this range of ranks
- “?” Indicates uncertainty about the incorrectness of a rank (Pers. Comm., Ms. Darlene Mc Griff, California Department of Fish and Game, September 1, 2000) (e.g., “G2?” indicates that the ranking is probably G2 (endangered), because of the uncertainty about the range of EOs, individuals, or acres of occupied habitat.
- GH All sites are historical; this species has not been seen in at least 20 years but no hard evidence of extinction.
- GX Species is extinct (SX = it is extirpated from California)
- GXC The species is extinct in the wild, but it exists in cultivation
- G2Q The species is endangered but there is a taxonomic question about the species.

## SPECIAL-STATUS SPECIES CODES

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### CALIFORNIA NATIVE PLANT SOCIETY'S (CNPS) LISTS:

List 1A	Presumed extinct in California
List 1B	Rare or Endangered in California and elsewhere
List 2	Rare or Endangered in California, more common elsewhere
List 3	Plants for which we need more information - Review list
List 4	Plants of limited distribution - Watch List.

**List 1A: Plants Presumed Extinct in California.** The 37 plants of List 1A are presumed extinct because they have not been seen or collected in the wild in California for many years. Although most of them are restricted to California, a few are found in other states as well. In many cases, repeated attempts have been made to rediscover these plants by visiting known historical locations. Note the difference between "extinct" and "extirpated." A plant is extirpated if it has been locally eliminated, but it may be doing well elsewhere in its range. The CNDDDB further splits this group of plants into those that are statewide historical (SH) and those that are extinct in the state (SX). All of the plants constituting List 1A meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection Act) or Secs. 2062 and 2067 (CESA) of the California Department of Fish and Game (CDFG) Code, and are eligible for state listing. If these taxa are rediscovered, they should be fully considered during preparation of environmental documents relating the California Environmental Quality Act (CEQA).

**List 1B: Plants Rare, Threatened, or Endangered in California and elsewhere.** The 857 plants of List 1B are rare throughout their range. All but a few are endemic to California. All of them are judged to be vulnerable under present circumstances or to have a high potential for becoming so because of their limited or vulnerable habitat, their low numbers of individuals per population (even though they may be wide ranging), or their limited number of populations. Most of the plants of List 1B have declined significantly since the arrival of non-indigenous humanity in California. All of the plants constituting List 1B meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection Act) or Secs. 2062 and 2067 (CESA) of the CDFG Code, and are eligible for state listing. List 1B plants should be fully considered during preparation of environmental documents relating to CEQA.

**List 2: Plants Rare, Threatened, or Endangered in California, but more common elsewhere.** Except for being common beyond the boundaries of California, the 272 plants of List 2 would have appeared on List 1B. From the federal perspective, plants common in other states or countries are not eligible for consideration under the provisions of the ESA. Until 1979, a similar policy was followed in California. However, after the passage of the Native Plant Protection Act, plants were considered for protection without regard to their distribution outside the state. All of the plants constituting List 2 meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection Act) or Secs. 2062 and 2067 (CESA) of the CDFG Code, and are eligible for state listing. List 2 plants should be fully considered during preparation of environmental documents relating to CEQA.

## SPECIAL-STATUS SPECIES CODES

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**List 3: Plants About Which We Need More Information - A Review list.** The 47 plants that comprise List 3 are united by one common theme--we lack the necessary information to assign them to one of the other lists or to reject them. Some of the plants constituting List 3 meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection Act), or Secs. 2062 and 2067 (CESA) of the CDFG Code, and are eligible for state listing. We recommend that List 3 plants be evaluated for consideration during preparation of environmental documents relating to CEQA.

**List 4: Plants of Limited Distribution - A Watch List.** The 532 plants in this category are of limited distribution or infrequent throughout a broader area in California, and their vulnerability or susceptibility to threat appears low at this time. While CNPS cannot call these plants "rare" from a statewide perspective, they are uncommon enough that their status should be monitored regularly. Should the degree of endangerment or rarity of a List 4 plant change, it will be transferred to a more appropriate list or deleted from consideration. Very few of the plants constituting List 4 meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection Act) or Secs. 2062 and 2067 (CESA) of the CDFG Code, and few, if any, are eligible for state listing. Nevertheless, many of them are significant locally, and we recommend that List 4 plants be evaluated for consideration during preparation of environmental documents relating to CEQA. This may be particularly appropriate for the type locality of a List 4 plant, for populations at the periphery of a species' range or in areas where the taxon is especially uncommon or has sustained heavy losses, or for populations exhibiting unusual morphology or occurring on unusual substrates.

### IUCN CODES:

The World Conservation Union (formerly the International Union for the Conservation of Nature) is the world's largest conservation organization with over 900 governmental and nongovernmental members from 138 countries. The IUCN is a storehouse of information and expertise, and as such, it advises and assists governments, organizations and local communities in developing and implementing conservation strategies. The Species Survival Commission, one of six global commissions within IUCN, has been publishing the "Red List of Threatened Species" for over 30 years. The Red List contains a roster of species that have been assessed against strict criteria.

**Extinct (EX):** A taxon is Extinct when there is no reasonable doubt that the last individual has died.

**Extinct in the Wild (EW):** A taxon is Extinct in the wild when it is known only to survive in cultivation, in captivity or as a naturalized population (or populations) well outside the past range. A taxon is presumed extinct in the wild when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.

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**Critically Endangered (CR):** A taxon is Critically Endangered when it is facing an extremely high risk of extinction in the wild in the immediate future, as defined by any of the criteria (A-E):

- (A) Population reduction in the form of either of the following:
  - 2. An observed, estimated, inferred or suspected reduction of at least 80 percent over the last 10 years or 3 generations, whichever is the longer, based on (and specifying) any of the following:
    - (a) direct observation
    - (b) an index of abundance appropriate for the taxon
    - (c) a decline in area of occupancy, extent of occurrence and/or quality of habitat
    - (d) actual or potential levels of exploitation
    - (e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites.
  - 3. A reduction of at least 80 percent, projected or suspected to be met within the next ten years or three generations, whichever is the longer, based on (and specifying) any of (b), (c), (d), or (e) above.
- (B) Extent of occurrence estimated to be less than 100 km<sup>2</sup> or area of occupancy estimated to be less than 10 km<sup>2</sup>, and estimates indicating any two of the following:
  - 1. Severely fragmented or known to exist at only a single location.
  - 2. Continuing decline, observed, inferred or projected, in any of the following:
    - (a) extent of occurrence
    - (b) area of occupancy
    - (c) area, extent and/or quality of habitat
    - (d) number of locations or subpopulations
    - (e) number of mature individuals.
  - 3. Extreme fluctuations in any of the following:
    - (a) extent of occurrence
    - (b) area of occupancy
    - (c) number of locations or subpopulations
    - (d) number of mature individuals.
- (C) Population estimated to number less than 250 mature individuals and either:
  - 1. An estimated continuing decline of at least 25 percent within 3 years or one generation, whichever is longer or
  - 2. A continuing decline, observed, projected, or inferred, in numbers of mature individuals and population structure in the form of either:
    - (a) severely fragmented (i.e., no subpopulation estimated to contain more than 50 mature individuals)
    - (b) all individuals are in a single subpopulation.
- (D) Population estimated to number less than 50 mature individuals.

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- (E) Quantitative analysis showing the probability of extinction in the wild is at least 50 percent within 10 years or 3 generations, whichever is the longer.

**Endangered (EN):** A taxon is Endangered when it is not Critically Endangered but is facing a very high risk of extinction in the wild in the near future, as defined by any of the criteria (A-E):

- (A) Population reduction in the form of either of the following:
1. An observed, estimated, inferred or suspected reduction of at least 50 percent over the last 10 years or 3 generations, whichever is the longer, based on (and specifying) any of the following:
    - (a) direct observation
    - (b) an index of abundance appropriate for the taxon
    - (c) a decline in area of occupancy, extent of occurrence and/or quality of habitat
    - (d) actual or potential levels of exploitation
    - (e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites.
  2. A reduction of at least 50 percent, projected or suspected to be met within the next 10 years or 3 generations, whichever is the longer, based on (and specifying) any of (b), (c), (d), or (e) above.
- (B) Extent of occurrence estimated to be less than 5000 km<sup>2</sup> or area of occupancy estimated to be less than 500 km<sup>2</sup>, and estimates indicating any two of the following:
1. Severely fragmented or known to exist at no more than five locations.
  2. Continuing decline, inferred, observed, or projected, in any of the following:
    - (a) extent of occurrence
    - (b) area of occupancy
    - (c) area, extent and/or quality of habitat
    - (d) number of locations or subpopulations
    - (e) number of mature individuals.
  3. Extreme fluctuations in any of the following:
    - (a) extent of occurrence
    - (b) area of occupancy
    - (c) number of locations or subpopulations
    - (d) number of mature individuals.
- (C) Population estimated to number less than 2,500 mature individuals and either:
1. An estimated continuing decline of at least 20 percent within 5 years or 2 generations, whichever is longer, or
  2. A continuing decline, observed, projected, or inferred, in numbers of mature individuals and population structure in the form of either:
    - (a) severely fragmented (i.e., no subpopulation estimated to contain more than 250 mature individuals)

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(b) all individuals are in a single subpopulation.

- (A) Population estimated to number less than 250 mature individuals.
- (B) Quantitative analysis showing the probability of extinction in the wild is at least 20 percent within 20 years or 5 generations, whichever is the longer.

**Vulnerable (VU):** A taxon is Vulnerable when it is not Critically Endangered or Endangered but is facing a high risk of extinction in the wild in the medium-term future, as defined by any of the criteria (A-E):

- (A) Population reduction in the form of either of the following:
  - 1. An observed, estimated, inferred or suspected reduction of at least 20 percent over the last 10 years or 3 generations, whichever is the longer, based on (and specifying) any of the following:
    - (a) direct observation
    - (b) an index of abundance appropriate for the taxon
    - (c) a decline in area of occupancy, extent of occurrence and/or quality of habitat
    - (d) actual or potential levels of exploitation
    - (e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors, or parasites.
  - 2. A reduction of at least 20 percent, projected or suspected to be met within the next 10 years or 3 generations, whichever is the longer, based on (and specifying) any of (b), (c), (d) or (e) above.
- (B) Extent of occurrence estimated to be less than 20,000 km<sup>2</sup> or area of occupancy estimated to be less than 2,000 km<sup>2</sup>, and estimates indicating any two of the following:
  - 1. Severely fragmented or known to exist at no more than ten locations.
  - 2. Continuing decline, inferred, observed, or projected in any of the following:
    - (a) extent of occurrence
    - (b) area of occupancy
    - (c) area, extent, and/or quality of habitat
    - (d) number of locations or subpopulations
    - (e) number of mature individuals.
  - 3. Extreme fluctuations in any of the following:
    - (a) extent of occurrence
    - (b) area of occupancy
    - (c) number of locations or subpopulations
    - (d) number of mature individuals.

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- (C) Population estimated to number less than 10,000 mature individuals and either:
1. An estimated continuing decline of at least 10 percent within 10 years or 3 generations, whichever is longer, or
  2. A continuing decline, observed, projected, or inferred in numbers of mature individuals and populations structure in the form of either:
    - (a) severely fragmented (i.e., no subpopulation estimated to contain more than 1,000 mature individuals)
    - (b) all individuals are in a single population.
- (D) Population very small or restricted in the form of either of the following:
1. Population estimated to number less than 1,000 mature individuals.
  2. Population is characterized by an acute restriction in its area of occupancy (typically less than 100 km<sup>2</sup>) or in the number of locations (typically less than 5). Such a taxon would thus be prone to the effects of human activities (or stochastic events whose impact is increased by human activities) within a very short period of time in an unforeseeable future, and is thus capable of becoming Critically Endangered or even Extinct in a very short period.
- (E) Quantitative analysis showing the probability of extinction in the wild is at least 10 percent within 100 years.

**Lower Risk (LR):** A taxon is Lower Risk when it has been evaluated, does not satisfy the criteria for any of the categories Critically Endangered, Endangered, or Vulnerable. Taxa included in the Lower Risk category can be separated into three subcategories:

Conservation Dependent (cd): Taxa that are the focus of a continuing taxon-specific or habitat-specific conservation program targeted towards the taxon in question, the cessation of which would result in the taxon qualifying for one of the threatened categories above within a period of 5 years.

Near Threatened (nt): Taxa that do not qualify for Conservation Dependent, but which are close to qualifying for Vulnerable.

Least Concern (lc): Taxa that do not qualify for Conservation Dependent or Near Threatened.

**Data Deficient (DD):** A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution is lacking. Data Deficient is therefore not a category of threat or Lower Risk. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate. It is important to make positive use of whatever data are available. In many cases great

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care should be exercised in choosing between DD and threatened status. If the range of a taxon is suspected to be relatively circumscribed, if a considerable period of time has elapsed since the last record of the taxon, threatened status may well be justified.

**Not Evaluated (NE):** A taxon is Not Evaluated when it has not yet been assessed against the criteria.

### THE AUDUBON SOCIETY'S STATE WATCH LIST FOR CALIFORNIA:

**Audubon: Cal WL:** The state Watch Lists were developed using the Partners in Flight (PIF) data and prioritization process. The state lists are a tool designed to help conserve local bird populations.

### BUREAU OF LAND MANAGEMENT (BLM) SENSITIVE SPECIES:

**BLM: Sensitive:** BLM Manual §6840 defines sensitive species as "...those species that are (1) under status review by the FWS/NMFS; or (2) whose numbers are declining so rapidly that Federal listing may become necessary; or (3) with typically small and widely dispersed populations; or (4) those inhabiting ecological refugia or other specialized or unique habitats. "Existing California-BLM policy concerning the designation of sensitive species identifies two conditions that must be met before a species may be considered as BLM sensitive: (1) a significant population of the species must occur on BLM-administered lands, and (2) the potential must exist for improvement of the species' condition through BLM management.

### CALIFORNIA DEPARTMENT OF FORESTRY (CDF) AND FIRE PROTECTION SENSITIVE SPECIES:

**CDF: Sensitive:** The Board of Forestry classifies as "sensitive species" those species that warrant special protection during timber operations.

### CDFG SPECIAL CONCERN SPECIES:

**CDFG: CSC:** It is the goal and responsibility of the CDFG to maintain viable populations of all native species. To this end, the CDFG has designated certain vertebrate species as "Species of Special Concern" because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction. The goal of designating species as "Species of Special Concern" is to halt or reverse their decline by calling attention to their plight and addressing the issues of concern early enough to secure their long term viability. Not all "Species of Special Concern" have declined equally; some species may be just starting to decline, while others may have already reached the point where they meet the criteria for listing as a "Threatened" or "Endangered" species under the state and/or federal ESAs.

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**CDFG: Fully protected and Protected:** Fully Protected and Protected species may not be taken or possessed without a permit from the CDFG Commission and/or the CDFG. Information on Fully Protected Species can be found in the CDFG Code (birds at Section 3511, mammals at Section 4700, reptiles and amphibians at Section 5050, and fish at Section 5515). Information on Fully Protected fish can be found in the California Code of Regulations, Title 14, Division 1, Chapter 2, Article 4, Section 5.93.

#### **FOREST SERVICE SENSITIVE SPECIES:**

**FS: Sensitive:** The Forest Service participates in recovery programs with the CDFG and the U.S. Fish and Wildlife Service to restore declining populations and protect habitats. A Forest Service "Sensitive Species" program identifies and manages species whose populations are declining.

#### **FISH AND WILDLIFE SERVICE MIGRATORY NONGAME BIRDS OF MANAGEMENT CONCERN (MNBMC):**

**FWS: MNBMC:** Species of migratory nongame birds that are considered to be of concern in the United States because of (1) documented or apparent population declines, (2) small or restricted populations, or (3) dependence on restricted or vulnerable habitats.

#### **PARTNERS IN FLIGHT WATCH LIST:**

**PIF: Watch List:** The Watch List is compiled by Partners in Flight, a coalition of state, federal, and private sector organizations working together to protect the birds of the western hemisphere. The Watch List identifies North American bird species in need of help. Watch List species are those faced with population decline, limited geographic range, and/or threats such as habitat loss on their breeding and wintering grounds. The Watch List is an early warning system that focuses attention on at-risk bird species before they become endangered. Saving species pushed to the edge of extinction is difficult, costly and politically charged. The Watch List shifts the agenda from reactive, last-minute rescue attempts to preventive action.

**Table D-1. Plant and Animal Species Observed on the Project Site**  
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SCIENTIFIC NAME	COMMON NAME
<b>Vascular Plants</b>	
<i>Allium</i> spp.	Wild onion
<i>Amsinckia</i> spp.	Fiddleneck
<i>Anagallis arvensis</i>	Scarlet pimpernel
<i>Asclepias fascicularis</i>	Narrow-leaf milkweed
<i>Avena fatua</i>	Wild oat
<i>Avena barbata</i>	Slender oats
<i>Baccharis pilularis</i>	Coyote brush
<i>Bellardia trixago</i>	Bellardia
<i>Brassica nigra</i>	Black mustard
<i>Briza minor</i>	Little quaking grass
<i>Bromus carinatus</i>	California brome
<i>Bromus diandrus</i>	Ripgut brome
<i>Bromus hordeaceus (Bromus mollis)</i>	Soft chess
<i>Bromus rubens</i>	Red brome
<i>Calystegia</i> spp.	Morning glory
<i>Carduus acanthoides</i>	Italian thistle
<i>Carduus pycnocephalus</i>	Plumeless thistle
<i>Centaurea calcitrapa</i>	Purple star thistle
<i>Centaurea solstitialis</i>	Star thistle
<i>Chlorogalum pomeridianum</i> ssp. <i>pomeridianum</i>	Soap plant
<i>Cirsium vulgare</i>	Bull thistle
<i>Cynara cardunculus</i>	Artichoke thistle
<i>Dichelostemma capitatum</i>	Blue dicks
<i>Distichlis spicata</i>	Salt grass
<i>Eleocharis macrostachya</i>	Creeping spikerush
<i>Elymus glaucus</i>	Blue wild rye
<i>Epilobium ciliatum</i>	Willow herb
<i>Eriogonum</i> spp.	Wild buckwheat
<i>Erodium botrys</i>	Broad-leaf filaree
<i>Eschscholzia californica</i>	California wild poppy
<i>Foeniculum vulgare</i>	Fennel
<i>Galium</i> spp.	Bedstraw
<i>Geranium molle</i>	Geranium
<i>Grindelia hirsutula</i> var. <i>hirsutula</i>	Gumplant
<i>Hemizonia congesta</i> var. <i>congesta</i>	Hayfield tarweed
<i>Hordeum jubatum</i>	Foxtail barley
<i>Holcus lanatus</i>	Velvet grass
<i>Hordeum murinum</i>	Foxtail
<i>Hypochaeris radicata</i>	Cat's ear
<i>Juncus balticus</i>	Baltic rush
<i>Juncus effusus</i>	Soft rush

**Table D-1. Plant and Animal Species Observed on the Project Site**  
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SCIENTIFIC NAME	COMMON NAME
<i>Juncus patens</i>	Spreading rush
<i>Juncus phaeocephalus</i>	Brown-headed rush
<i>Juncus xiphioides</i>	Iris-leaved rush
<i>Lactuca serriola</i>	Prickly lettuce
<i>Leymus triticoides</i>	Creeping wild rye
<i>Linum bienne</i>	Flax
<i>Lolium multiflorum</i>	Italian ryegrass
<i>Lotus corniculatus</i>	Bird's foot trefoil
<i>Lotus purshianus</i> var. <i>purshianus</i>	Spanish clover
<i>Lupinus</i> sp.	Lupine
<i>Malva parviflora</i>	Cheeseweed
<i>Marah watsonii</i>	Wild cucumber
<i>Medicago polymorpha</i>	Bur clover
<i>Melica</i> sp.	Onion grass
<i>Melilotus alba</i>	White sweetclover
<i>Melilotus indica</i>	Sourclover
<i>Mentha pulegium</i>	Pennyroyal
<i>Mimulus</i> sp.	Monkeyflower
<i>Nassella pulchra</i>	Purple needlegrass
<i>Oenanthe sarmentosa</i>	Water parsley
<i>Picris echioides</i>	Bristly oxtongue
<i>Phalaris</i> sp.	Canarygrass
<i>Phalaris aquatica</i>	Harding grass
<i>Plantago coronopus</i>	Cutleaf plantain
<i>Plantago lanceolata</i>	English plantain
<i>Plantago major</i>	Common plantain
<i>Polypogon monspeliensis</i>	Annual rabbit-foot grass
<i>Populus fremontii</i> spp. <i>fremontii</i>	Fremont cottonwood
<i>Quercus agrifolia</i>	Coast live oak
<i>Ranunculus repens</i>	Buttercup
<i>Raphanus sativus</i>	Wild radish
<i>Rorippa nasturtium-aquaticum</i>	Watercress
<i>Rosa californica</i>	Rose
<i>Rubus ursinus</i>	California blackberry
<i>Rumex acetosella</i>	Sheep sorrel
<i>Rumex crispus</i>	Curly dock
<i>Rumex pulcher</i>	Fiddle dock
<i>Rumex salicifolius</i>	Willow dock
<i>Salix lasiolepis</i>	Arroyo willow
<i>Salix</i> sp.	Willows
<i>Sambucus racemosa</i>	Red elderberry
<i>Sanicula bipinnatifida</i>	Purple sanicle
<i>Scirpus acutus</i> var. <i>occidentalis</i>	Tule
<i>Scirpus americanus</i>	Olney's bulrush

**Table D-1. Plant and Animal Species Observed on the Project Site**  
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SCIENTIFIC NAME	COMMON NAME
<i>Sisyrinchium bellum</i>	Blue-eyed grass
<i>Sonchus asper</i>	Prickly sow thistle
<i>Stachys ajugoides</i> var. <i>ajugoides</i>	Bugle hedgenettle
<i>Toxicodendron diversilobum</i>	Poison oak
<i>Trifolium</i> spp.	Clover
<i>Triteleia laxa</i>	Ithuriel's spear
<i>Typha angustifolia</i>	Narrow-leaved cattail
<i>Typha latifolia</i>	Broad-leaved cattail
<i>Vicia benghalensis</i>	Purple vetch
<i>Vicia sativa</i>	Garden vetch
<i>Vulpia</i> sp.	Vulpia
<i>Vicia benghalensis</i>	Purple vetch
<i>Wyethia angustifolia</i>	Mule's ears
<i>Wyethia glabra</i>	Mule's ears
<b>Fish</b>	
<i>Gasterosteus aculeatus</i>	Threespine stickleback
<b>Amphibians</b>	
<i>Hyla regilla</i>	Pacific treefrog
<i>Taricha torosa</i>	California newt
<b>Reptiles</b>	
<i>Pituophis melanoleucus catenifer</i>	Pacific gopher snake
<i>Sceloporus occidentalis</i>	Western fence lizard
<b>Birds</b>	
<i>Accipiter cooperii</i>	Cooper's hawk
<i>Agelaius phoeniceus</i>	Red-winged blackbird
<i>Anas cyanoptera</i>	Cinnamon teal
<i>Anas strepera</i>	Gadwall
<i>Anas platyrhynchos</i>	Mallard
<i>Aphelocoma californica</i>	Western scrub jay
<i>Buteo jamaicensis</i>	Red-tailed hawk
<i>Butorides virescens</i>	Green heron
<i>Calypte anna</i>	Anna's hummingbird
<i>Carduelis tristis</i>	American goldfinch
<i>Carduelis psaltria</i>	Lesser goldfinch
<i>Carpodacus mexicanus</i>	House finch
<i>Cathartes aura</i>	Turkey vulture
<i>Circus cyaneus</i>	Northern harrier
<i>Columba livia</i>	Rock dove
<i>Corvus brachyrhynchos</i>	American crow
<i>Elanus leucurus</i>	White-tailed kite
<i>Euphagus cyanocephalus</i>	Brewer's blackbird
<i>Falco sparverius</i>	American kestrel
<i>Geothlypis trichas</i>	Common yellowthroat
<i>Hirundo rustica</i>	Barn swallow

**Table D-1. Plant and Animal Species Observed on the Project Site**  
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SCIENTIFIC NAME	COMMON NAME
<i>Hirundo pyrrhonota</i>	Cliff swallow
<i>Icterus galbula</i>	Northern oriole
<i>Lanius ludovicianus</i>	Loggerhead shrike
<i>Melospiza melodia</i>	Song sparrow
<i>Mimus polyglottos</i>	Northern mockingbird
<i>Pandion haliaetus</i>	Osprey
<i>Passer domesticus</i>	House sparrow
<i>Phasianus colchicus</i>	Ring-necked pheasant
<i>Pipilo crissalis</i>	California towhee
<i>Rallus limicola</i>	Virginia rail
<i>Sayornis nigricans</i>	Black phoebe
<i>Stelgidopteryx serripennis</i>	Northern rough-winged swallow
<i>Sturnella neglecta</i>	Western meadowlark
<i>Tachycineta bicolor</i>	Tree swallow
<i>Turdus migratorius</i>	American robin
<i>Tyto alba</i>	Barn owl
<i>Zenaida macroura</i>	Mourning dove
<b>Mammals</b>	
<i>Castor canadensis</i>	Beaver
<i>Canis latrans</i>	Coyote
<i>Lepus californicus</i>	Black-tailed jackrabbit
<i>Mephitis mephitis</i>	Striped skunk
<i>Odocoileus hemionus</i>	Mule deer (Black-tailed deer)
<i>Thomomys bottae</i>	Botta's pocket gopher

Sources: Earth Tech, 1999a; Wetlands Research Associates, Inc., 1998, 1999, 2000a,b,c,d,e.

Table D-2. Special-Status Species That May Occur in or be Affected by Projects in the Benicia Quadrangle<sup>(a)</sup>

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Scientific Name	Common Name	Status			Habitat	Potential On-site Habitat	Potential for Occurrence on Project Site
		ESA	CESA	Other			
<b>Vascular Plants</b>							
<i>Aster lentus</i>	Suisun Marsh aster	FSC	None	CNDDDB:G2S2.2 CNPS:1B	Fresh/brackish marshes at the upper zone of tidal influence.	None	None
<i>Calochortus pulchellus</i>	Mt. Diablo fairy-lantern	None	None	CNDDDB:G2S2.1 CNPS:1B		Grassland	Low; species presence in Solano County is questioned by CNPS (Skinner and Paulik, 1994).
<i>Cordylanthus mollis</i> ssp. <i>mollis</i>	Soft bird's-beak	FE	SR	CNDDDB:G2T1S1.2 CNPS:1B	Brackish/coastal salt marshes.	None	None
<i>Dirca occidentalis</i>	Western leatherwood	None	None	CNDDDB:G2G3S25 3 CNPS:1B	Broad-leaved upland forest, chaparral, closed-cone coniferous forest, cismontane woodlands.	None	None
<i>Helianthella castanea</i>	Diablo helianthella (=rock rose)	FSC	None	CNDDDB:G3S3.2 CNPS:18	Sandy areas of grassy slopes in woodland. savannah, chaparral.	Grassland	Low; not known from Solano County.
<i>Hemizonia parryi</i> spp. <i>congdonii</i>	Pappose spikeweed (=Congdon's tarplant)	FSC	None	CNDDDB:G5T1S1.1 CNPS:1B	Alkaline areas in grassland.	None	None

Table D-2. Special-Status Species That May Occur in or be Affected by Projects in the Benicia Quadrangle<sup>(a)</sup>

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Scientific Name	Common Name	Status			Habitat	Potential On-site Habitat	Potential for Occurrence on Project Site
		ESA	CESA	Other			
<i>Lasthenia conjugens</i>	Contra Costa goldfields	FE	None	CNDDDB:G151.1 CNPS:1B	Valley and foothill grasslands, inhabits open grassy areas surrounding vernal pools.	None; vernal pool habitat not present on site.	None
<i>Lathyrus jepsonii</i> var. <i>jepsonii</i>	Delta tule-pea	FSC	None	CNDDDB:G5T2S2.2 CNPS:1B	Brackish and freshwater marshes, above zone of tidal influence.	None; tidal habitat not present on site; elevations > 65 feet.	None
<i>Lilaeopsis masonii</i>	Mason's lilaeopsis	FSC	SR	CNDDDB:G3S3.1	Freshwater and brackish marshes, riparian scrub, and tidal zones in muddy or silty soil formed through river deposition or bank erosion.	None; tidal habitat not present on site; elevations > 65 feet.	None
<i>Monardella villosa</i> spp. <i>globosa</i>	Robust monardella	None	None	CNDDDB:G5THSH? CNPS:1B	Inhabits clearings in chaparral and cismontane woodlands.	None; chaparral and woodland habitat not present on site.	None
<i>Senecio aphanactis</i>	Rayless ragwort	None	None	CNDDDB:G3?S1.2 CNPS:2	Drying alkaline flats in cismontane woodland and coastal scrub.	None; alkali flats not present on site.	None

Table D-2. Special-Status Species That May Occur in or be Affected by Projects in the Benicia Quadrangle<sup>(a)</sup>

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Scientific Name	Common Name	Status			Habitat	Potential On-site Habitat	Potential for Occurrence on Project Site
		ESA	CESA	Other			
<b>Invertebrates</b>							
<i>Branchinecta lynchi</i>	Vernal pool fairy shrimp	FT	None	CNDDDB:G2G3S2S3 IUCN:VU/A2c	Vernal pools; also found in sandstone rock outcrops.	None	None
<i>Hydrochara rickseckeri</i>	Ricksecker's water scavenger beetle	FSC	None	CNDDDB:G1G2S1S2	Vernal pools, ponds, flowing streams.	Wetlands	Low
<i>Linderiella occidentalis</i>	California linderiella	FSC	None	CNDDDB:G2G3S2S3 IUCN:LRnt	Vernal pools.	None	None
<i>Nothochrysa californica</i>	San Francisco lacewing	FSC	None	CNDDDB:G?S?	Upland grasslands and wetlands.	Grasslands, wetlands	Low
<i>Speyeria callippe callippe</i>	Callippe silverspot butterfly	FE	None	CNDDDB:G5T1T2S1S2	The larvae of the Callippe silverspot feed exclusively on Johnny jump-up plants ( <i>Viola pedunculata</i> ), which occur in grassland habitat. Adult butterflies feed on introduced thistle and native mints. Adults tend to congregate on prominent hilltops where they search for potential mates.	Grasslands	None for larvae. Survey indicates Project Site does not contain Johnny jump-up plants.  Moderate probability of occurrence for adults.

Table D-2. Special-Status Species That May Occur in or be Affected by Projects in the Benicia Quadrangle<sup>(a)</sup>

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Scientific Name	Common Name	Status			Habitat	Potential On-site Habitat	Potential for Occurrence on Project Site
		ESA	CESA	Other			
<i>Syncaris pacifica</i>	California freshwater shrimp	FE	SE	CNDDDB:G1S1 IUCN:EN/A1ce	Lowland perennial streams in Sonoma, Marin, and Napa counties.	None	None
<b>Fishes</b>							
<i>Acipenser medirostris</i>	Green sturgeon	FSC	None	CNDDDB:G4G5S1S 2 IUCN:VU/A1ac CDFG:CSC	Anadromous and native to the Sacramento-San Joaquin estuary.	None	None
<i>Hypomesus transpacificus</i> <sup>CH</sup>	Delta smelt	FT	ST	CNDDDB:G1S1 IUCN:EN/B1+2cd	Occurs only in Suisun Bay and Sacramento-San Joaquin estuary.	None	None
<i>Lampetra ayresi</i>	River lamprey	FSC	None	CNDDDB:G5S4 CDFG:CSC	Small freshwater tributary streams of the Sacramento-San Joaquin River system such as the Sonoma and Napa rivers.	None	None
<i>Lampetra tridentata</i>	Pacific lamprey	FSC	None	CNDDDB:G5T1S1 CDFG:CSC FS:Sensitive	Sacramento and San Joaquin rivers and their tributaries.	None	None
<i>Oncorhynchus mykiss</i>	Central Valley steelhead	FT	None	CNDDDB:G5S2	Anadromous, freshwater/marine.	None	None

Table D-2. Special-Status Species That May Occur in or be Affected by Projects in the Benicia Quadrangle<sup>(a)</sup>

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Scientific Name	Common Name	Status			Habitat	Potential On-site Habitat	Potential for Occurrence on Project Site
		ESA	CESA	Other			
<i>Oncorhynchus tshawytscha</i> <sup>CH</sup>	Winter-run chinook salmon	FE	SE	CNDDDB:G5S1	Anadromous, freshwater/marine.	None	None
<i>Oncorhynchus tshawytscha</i> <sup>PCH</sup>	Central Valley spring-run chinook salmon	FT	ST	CNDDDB:G5S1 FS:Sensitive	Anadromous, freshwater/, marine.	None	None
<i>Oncorhynchus tshawytscha</i>	Central Valley fall/late fall-run chinook salmon	FC	None	CNDDDB:G5S2? CDFG:CSC FS:Sensitive	Anadromous, freshwater/marine.	None	None
<i>Pogonichthys macrolepidotus</i>	Sacramento splittail	FT	None	CNDDDB:G2S2 IUCN:EN/A1c CDFG:CSC	San Francisco Bay Delta and lower Sacramento River.	None	None
<i>Spirinchus thaleichthys</i>	Longfin smelt	FSC	None	CNDDDB:G4G5S1 CDFG:CSC	Anadromous freshwater/marine.	None	None
<b>Amphibians</b>							
<i>Ambystoma californiense</i>	California tiger salamander	FC	None	CNDDDB:G2G3S2S3 IUCN:VU/A2c CDFG:CSC CDFG:Protected	Breeds in vernal pools and permanent waters of grasslands and open woodlands of low hills and valleys.	Wetlands	Moderate
<i>Rana aurora draytonii</i>	California red-legged frog	FT	None	CNDDDB:G4T2T3S2S3 CDFG:CSC CDFG:Protected (Full species)	Ponds, grasslands, and streamsides, especially where cattails or other plants provide good cover.	Wetlands	Moderate; surveys did not find any adults, larvae, or egg masses.

**Table D-2. Special-Status Species That May Occur in or be Affected by Projects in the Benicia Quadrangle<sup>(a)</sup>**  
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Scientific Name	Common Name	Status			Habitat	Potential On-site Habitat	Potential for Occurrence on Project Site
		ESA	CESA	Other			
<i>Rana boylei</i>	Foothill yellow-legged frog	FSC	None	CNDDDB:G3S2S3 CDFG:CSC CDFG:Protected FS:Sensitive BLM:Sensitive	Streams and rivers of woodlands, chaparral, and forests. Usually found near riffles where there are rocks and sunny banks.	None	None
<i>Scaphiopus hammondi</i>	Western spadefoot toad	FSC	None	CNDDDB:G3?S3? CDFG:CSC CDFG:Protected BLM:Sensitive	Prefers areas of open vegetation and short grasses, where the soil is sandy or gravelly. Found in valley and foothill grasslands, open chaparral, and pine-oak woodlands.	Grasslands	Low

**Table D-2. Special-Status Species That May Occur in or be Affected by Projects in the Benicia Quadrangle<sup>(a)</sup>**  
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Scientific Name	Common Name	Status			Habitat	Potential On-site Habitat	Potential for Occurrence on Project Site
		ESA	CESA	Other			
<i>Tarich torosa</i>	California newt	None	None	None	Occurs in low-humidity grasslands and woodlands and forests. Generally breeds in ponds, reservoirs, and slow flowing streams. Optimal habitat is present in or near streams in valley foothill hardwood and hardwood-coniferous habitats. Although the California newt is not listed as a special status species, the California newt is of concern because it is experiencing a general decline in population (Stebbins, 1985).	Wetlands	Present; this species was observed in larval stage during on-site visit.

Table D-2. Special-Status Species That May Occur in or be Affected by Projects in the Benicia Quadrangle<sup>(a)</sup>

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Scientific Name	Common Name	Status			Habitat	Potential On-site Habitat	Potential for Occurrence on Project Site
		ESA	CESA	Other			
<b>Reptiles</b>							
<i>Clemmys marmorata marmorata</i>	Northwestern pond turtle	FSC	None	CNDDDB:G4T4S3 CDFG:CSC CDFG:Protected (Full species) FS:Sensitive	Aquatic; prefers ponds, marshes, rivers, streams, and irrigation ditches that typically have a rocky or muddy bottom and are grown to watercress, cattails, water lilies, or other aquatic vegetation.	Wetlands	Moderate
<i>Masticophis lateralis euryxanthus</i>	Alameda whipsnake (=striped racer)	FT	ST	CNDDDB:G4T2S2 CDFG:Protected	Chaparral; scrublands broken by scattered grassy patches, and rocky hillsides, gullies, canyons, or stream courses.	Grassland, wetlands	None; out of range of occurrence.
<i>Phrynosoma coronatum frontale</i>	California horned lizard	FSC	None	CNDDDB:G4T3T4S 3S4 CDFG:CSC CDFG:Protected (Full species) BLM:Sensitive	Scrublands, grasslands, coniferous forests, and broadleaf woodland. Needs open areas and patches of fine, loose soil where it can bury itself.	Grasslands	Low
<i>Thamnophis gigas</i>	Giant garter snake	FT	ST	CNDDDB:G2G3S2S 3 IUCN:VU/A1cde+2 cde CDFG:Protected	Streams and sloughs, usually with mud bottoms.	Wetlands	None; out of range of occurrence.

Table D-2. Special-Status Species That May Occur in or be Affected by Projects in the Benicia Quadrangle<sup>(a)</sup>

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Scientific Name	Common Name	Status			Habitat	Potential On-site Habitat	Potential for Occurrence on Project Site
		ESA	CESA	Other			
<b>Birds</b>							
<i>Agelaius tricolor</i>	Tricolored blackbird	FSC	None	CNDDDB:G2S2 CDFG:CSC FWS:MNBMC Audubon:Cal WL BLM:Sensitive	Cattails or tules.	Wetlands	High
<i>Aquila chrysaetos</i> (nesting and wintering)	Golden eagle	None	None	CNDDDB:G4S3 CDFG:CSC CDFG:Fully protected CDF:Sensitive	Mountains and grasslands. Nests in mature trees.	Grasslands	High
<i>Accipiter cooperi</i>	Cooper's hawk	None	None	CNDDDB:G4S3 CDFG:CSC	Inhabits broken woodlands or stream side groves, especially deciduous; in winter, semi-open habitats.	Grasslands, during winter migration	Present
<i>Athene cunicularia hypugea</i> (burrowing sites)	Western burrowing owl	FSC	None	CNDDDB:G4T2S2 CDFG:CSC FWS:MNBMC (Full species BLM:Sensitive	Grasslands and plains.	Grasslands	Moderate
<i>Buteo regalis</i> (wintering)	Ferruginous hawk	FSC	None	CNDDDB:G4S3S4 CDFG:CSC Audubon:Cal WL FWS:MNBMC	Grasslands and plains.	Grasslands	Low

Table D-2. Special-Status Species That May Occur in or be Affected by Projects in the Benicia Quadrangle<sup>(a)</sup>

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Scientific Name	Common Name	Status			Habitat	Potential On-site Habitat	Potential for Occurrence on Project Site
		ESA	CESA	Other			
<i>Charadrius alexandrinus nivosus</i> (nesting)	Western snowy plover (coastal population)	FT	None	CNDDDB:G4T2S2 CDFG:CSC FWS:MNBMC (Full species) PIF:Watch list (Full species)	Sand flats and alkali ponds.	None	None
<i>Circus cyaneus</i> (nesting)	Northern harrier	None	None	CNDDDB:G5S3 CDFG:CSC	Marshes and grasslands.	Wetlands and Grasslands	Present; this species was observed during on-site visit.
<i>Elanus luecurus</i>	White-tailed kite	None	None	CNDDDB:G5S3 CDFG:Fully Protected	Inhabits herbaceous lowlands with variable tree growth and open stages of most habitats occurring in cismontane California.	Grasslands	Moderate
<i>Empidonax traillii brewsteri</i> (nesting)	Little willow flycatcher	None	None	CNDDDB:G5T1T2S1S2	Brushy slopes.	None	None
<i>Eremophila alpestris actia</i>	California horned lark	None	None	CNDDDB:G4G5T3S3 CDFG:CSC	Dry grasslands and rangelands with low, sparse cover. Commonly found in large fields.	Grasslands	Moderate

Table D-2. Special-Status Species That May Occur in or be Affected by Projects in the Benicia Quadrangle<sup>(a)</sup>

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Scientific Name	Common Name	Status			Habitat	Potential On-site Habitat	Potential for Occurrence on Project Site
		ESA	CESA	Other			
<i>Falco peregrinus anatum</i> (nesting)	American peregrine falcon	FD	SE	CNDDDB:G3T2S2 FWS:MNBMC (Full species) CDF:Sensitive CDFG;Fully protected	Coastal cliffs, mountains, and forests.	None	None
<i>Geothlypis trichas sinuosa</i>	Saltmarsh common yellowthroat	FSC	None	CNDDDB:G5T2S2 CDFG:CSC	Salt marshes, freshwater marsh, and tule patches.	Wetlands	Moderate
<i>Haliaeetus leucocephalus</i> (nesting and wintering)	Bald eagle	FT; FPD	SE	CNDDDB:G4S2 CDF:Sensitive CDFG:Fully Protected	Forests, lake shores, and rivers. Nest in mature trees.	None	None
<i>Lanius ludovicianus</i>	Loggerhead shrike	FSC	None	CNDDDB:G4S4 CDFG:CSC	Lowland foothills, grasslands, agricultural lands, open shrub lands. Prefers scattered shrubs, posts, fences, utility lines and other perches.	Grasslands	Present; this species was observed during on-site visit.
<i>Laterallus jamaicensis coturniculus</i>	California black rail	None	ST	CNDDDB:G4T1S1 PIF:Watch list (Full species) CDFG:Fully protected Audubon:Cal WL FWS:MNBMC (Full species)	Salt marshes with cordgrass. Rarely found in freshwater marshes.	None	None

Table D-2. Special-Status Species That May Occur in or be Affected by Projects in the Benicia Quadrangle<sup>(a)</sup>

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Scientific Name	Common Name	Status			Habitat	Potential On-site Habitat	Potential for Occurrence on Project Site
		ESA	CESA	Other			
<i>Melospiza melodia maxillaris</i>	Suisun song sparrow	FSC	None	CNDDDB:G5T2S2 CDFG:CSC	Wetlands with bushes, hedgerows, and wood margins.	None	None
<i>Melospiza melodia samuelis</i>	San Pablo (=Samuel's) song sparrow	FSC	None	CNDDDB:G5T2?S2 CDFG:CSC	Wetlands with bushes, hedgerows, and wood margins.	None	None
<i>Pelecanus occidentalis californicus</i> (nesting colony)	California brown pelican	FE	SE	CNDDDB:G4T3S1S2 FWS:MNBM CDFG:Fully protected	Coastal waters. Rarely found in freshwater.	None	None
<i>Rallus longirostris obsoletus</i>	California clapper rail	FE	SE	CNDDDB:G5T1S1 CDFG:Fully protected	Salt marshes.	None	None
<b>Mammals</b>							
<i>Corynorhinus</i> (=Plecotus) <i>townsendii townsendii</i>	Pacific (=Townsend's) western big-eared bat	FSC	None	CNDDDB:G5T3T4S2S3 IUCN:VU/A2c (Full species) CDFG:CDC (Full species) FS:Sensitive (Full species) BLM:Sensitive (Full species)	Rocky outcrops near caves, crevices or abandoned mine shafts.	None	None

**Table D-2. Special-Status Species That May Occur in or be Affected by Projects in the Benicia Quadrangle<sup>(a)</sup>**  
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Scientific Name	Common Name	Status			Habitat	Potential On-site Habitat	Potential for Occurrence on Project Site
		ESA	CESA	Other			
<i>Eumops perotis californicus</i>	Greater western mastiff-bat	FSC	None	CNDDDB:G5S3? CDFG:CSC (Full species) BLM:Sensitive (Full species)	Vertical cliffs and canyon walls.	None	None
<i>Myotis evotis</i>	Long-eared myotis bat	FSC	None	CNDDDB:G5S4? BLM:Sensitive	Coniferous forests, often at higher elevations.	None	None
<i>Myotis thysanodes</i>	Fringed myotis bat	FSC	None	CNDDDB:G5S4 BLM:Sensitive	Caves and old buildings.	None	None
<i>Myotis volans</i>	Long-legged myotis bat	FSC	None	CNDDDB:G5S4?	Forests. High, open woods and mountainous terrain.	None	None
<i>Myotis yumanensis</i>	Yuma (=San Joaquin) myotis bat	FSC	None	CNDDDB:G5S4? CDFG:CSC BLM:Sensitive	Open habitats. Roosts in caves, abandoned mine shafts and buildings.	Grasslands, wetlands	Low
<i>Neotoma fuscipes annectens</i>	San Francisco dusky-footed woodrat	FSC	None	CNDDDB:G5T2T3S 2S3 IUCN:DD CDFC:CSC	Hardwood forests, riparian areas.	None	None; out of range of occurrence.
<i>Neotoma fuscipes riparia</i> <sup>PEX</sup>	Riparian (=San Joaquin Valley) woodrat	FPE	None	CNDDDB:G5T1S1 IUCN:CR/B1+2c CDFG:CSC	Hardwood forests, riparian areas.	None	None; out of range of occurrence.

**Table D-2. Special-Status Species That May Occur in or be Affected by Projects in the Benicia Quadrangle<sup>(a)</sup>**

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Scientific Name	Common Name	Status			Habitat	Potential On-site Habitat	Potential for Occurrence on Project Site
		ESA	CESA	Other			
<i>Perognathus inornatus inornatus</i>	San Joaquin Pocket Mouse	FSC	None	CNDDDB:G4T2 T3S2S3	East side of the San Joaquin Valley and possibly in the Sacramento Valley, friable soils in grasslands and Blue Oak savannas.	Grasslands	Low
<i>Reithrodontomys raviventris</i>	Salt marsh harvest mouse	FE	SE	CNDDDB:G1G2S1S 2 IUCN:VU/A1c+2c CDFG;Fully protected	Salt marsh	None	None
<i>Sorex ornatus sinousus</i>	Suisun shrew	None	None	CNDDDB:G5T1S1 CDFG:CSC	Tidal marshes of the northern shores of San Pablo Bay and Suisun Bay.	None	None

Note: (a) A list of codes and a description of the abbreviations used under 'Status' are provided at the beginning of this appendix.

CH = Critical habitat is designated by the USFWS for this species.

PCH = Critical habitat is proposed by the USFWS for this species.

PEX = Possibly extirpated from the area.

Source: California Natural Diversity Data Base, 2000.

## **APPENDIX E**

### **STANDARD OPERATING PROCEDURES FOR DISPOSITION OF ORDNANCE AND EXPLOSIVES (OE) ITEMS**



# Standard Operating Procedure for Disposition of Ordnance and Explosives (OE) Items

**NOTE:** *This Standard Operating Procedure (SOP) has been prepared to address the methods and procedures for the decision making process for determining first, if an anomaly is non-OE, OE scrap, potential OE, or OE; and second, if the item is identified as OE, if it is safe to move, or not safe to move, and the procedures for the disposal of OE that will be employed during the Tourtelot Cleanup Project.*



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## **Identification of Non-Ordnance and Explosives (OE), OE Scrap, Potential OE, and OE**

During the OE point and areawide OE clearances that will be employed at the Tourtelot Cleanup Site, the OE clearance crews will identify recovered anomalies as non-OE, OE scrap, potential OE, or OE. OE is ammunition, ammunition components, or explosives that have been abandoned, expelled from demolition pits or burn pads, lost, discarded, or buried.

Non-OE consists of anomalies that are inert metallic items (e.g., metal cans, buckets, nails, bolts, re-bar).

OE scrap includes those items that are (1) fragments of OE that have functioned as designed, or were intentionally destroyed during demolition operations, and that contain no explosives or other items of a dangerous nature. OE scrap is inert and does not pose a safety risk. An item is determined to be OE scrap if it can be visually inspected for the presence of explosives from all sides, and no explosive material is present. OE scrap that is explosively contaminated is considered OE.

An item will be identified as potential OE if it cannot be determined whether explosives are present. Potential OE items will be handled as OE by the clearance crew, and potential OE and OE items will be left in place and flagged for further inspection by the demolition team. Non-OE and OE scrap items will be collected and placed in the corner of each grid section that will be laid out on the Project Site.

After the clearance crew has collected the non-OE and OE scrap items and flagged potential OE and OE items, the demolition team will further inspect all flagged items to make a final determination if an item is OE or OE scrap. OE scrap items will be handled as previously described above. The demolition crew will also further inspect the non-OE and OE scrap items collected by the OE clearance crew to certify that these items are not OE. Once certified as not OE, the non-OE and OE scrap items will be moved to a central on-site location for secure storage in a locked container. OE items will be further inspected as described below.

### **Determination of Safe to Move**

The demolition team will inspect each OE item to determine if it is safe to move. The inspection will be directed by the Senior Unexploded Ordnance Supervisor (SUXOS) in conjunction with the Unexploded Ordnance (UXO) Site Safety Officer (UXOSO). The SUXOS and UXOSO will be graduates of the Naval School Explosive Ordnance

Disposal Training Program (or equivalent) and have a minimum of 15 and 10 years experience, respectively. Their determination will be based on available Ordnance Technical Manual (TM) data, training, and professional knowledge using the following criteria in conjunction with the OE process flow chart provided as Figure 1:

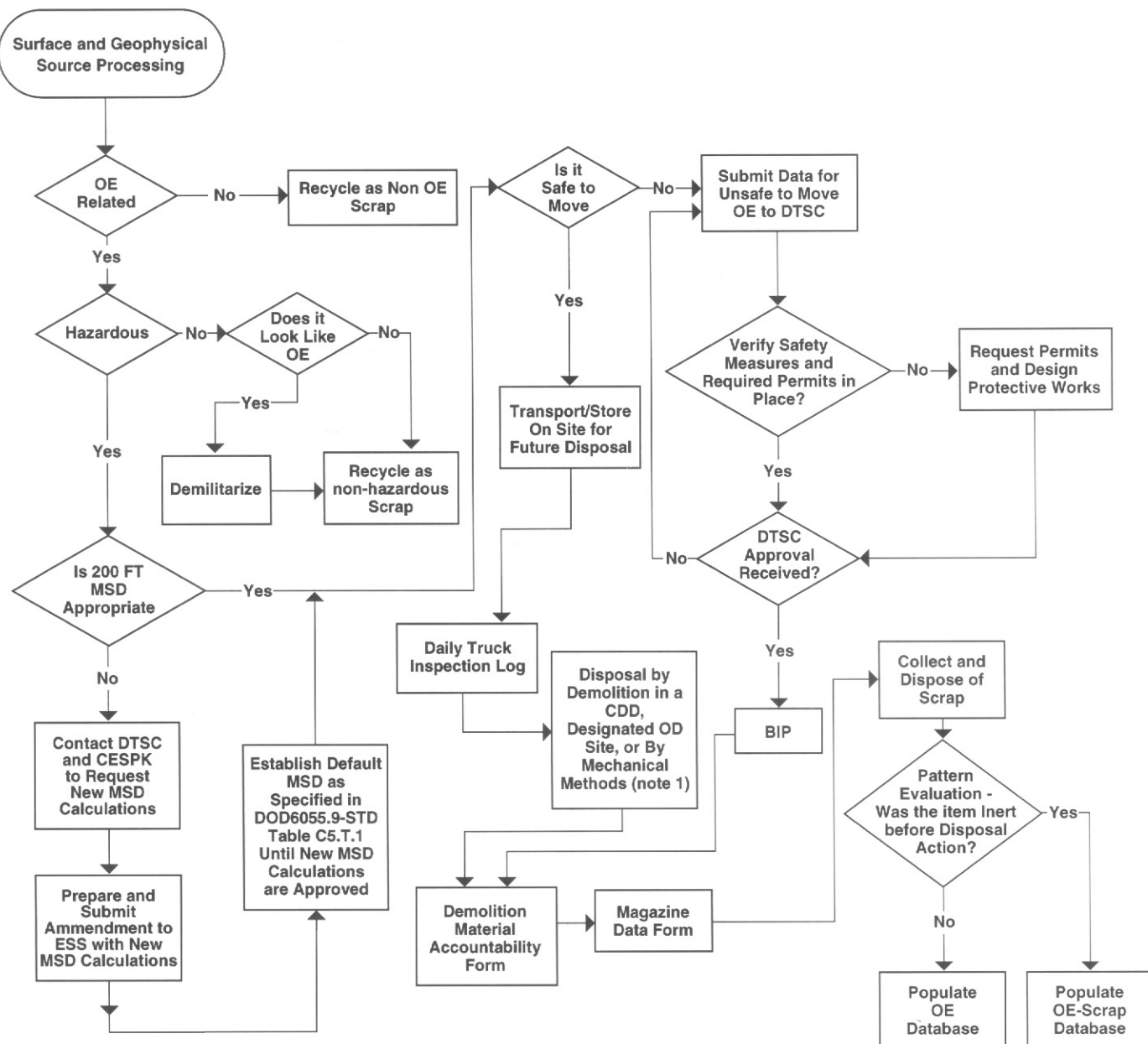
*Inspect the OE item to determine if it is **armed** or **unarmed**, and if it is **unsafe due to damage**.*

- An item is considered armed if it has been fired or used for its intended purpose. The determination that it is **armed or unarmed** is, in part, based on the following criteria:*

**NOTE: The following are examples of what would be used to determine if an item is armed.**

- S     **Projectiles** - Check the rotating ban. If it has been scored by the rifling in the gun tube, it has been fired; if it is fuzed, it must be considered armed.*
- S     **Mortars** - Check the ignition cartridge and percussion primer. If the primer is impinged, it must be considered fired; if it is fuzed, it must be considered armed.*
- S     **Hand Grenades** - Check the safety pin and spoon. If the safety pin and/or spoon are missing, it is armed.*
- An item, either armed or unarmed, may have been rendered **unsafe due to damage**. The types of damage that may render an item unsafe could include, but are not limited to, the following:*
  - S     **Dents** - in the body or fuzing systems*
  - S     **Holes** - or rips in the body or fuzing systems*
  - S     **Burned** - visible scorching and/or soot present.*

OE items that are armed, or determined to be rendered unsafe due to damage, or whose status cannot be safely evaluated due to deterioration, positioning, etc., will not be considered safe to move; therefore, blow-in-place (BIP) procedures will be conducted to ensure safe disposal. OE items that are unarmed and not rendered unsafe due to damage may be considered safe to move. In some cases, OE items that are damaged may be moved if OE TM data indicate that the item is safe to move.



Note 1: Percussion primers that have not been in-pinged on cartridge cases and mortar pin assemblies that have been completely expended due to past demolition procedures will be mechanically in-pinged prior to off site disposal.

## EXPLANATION

<b>BIP</b>	Blow in Place
<b>CDD</b>	Contained Demolition Device
<b>CESPK</b>	U.S. Army Corps of Engineers, Sacramento District
<b>DEMIL</b>	Demilitarization (to render unusable)
<b>DTSC</b>	Department of Toxic Substance Control
<b>ESS</b>	Explosive Safety Submittal
<b>FT</b>	Feet
<b>MSD</b>	Minimum Separation Distance
<b>OD</b>	Open Detonation
<b>OE</b>	Ordnance and Explosives

## OE Process Flowchart

Figure 1

Once a determination has been made by on-site personnel that an OE item requires a BIP, the U.S. Army Corps of Engineers (USACE) and Department of Toxic Substances Control (DTSC) site representatives will be notified of the finding, and a request to conduct the BIP will be submitted.

## **Disposal of OE Items**

### Procedures for Safe-to-Move OE Items

Items that are determined to be safe to move will be relocated by the demolition team to a Bureau of Alcohol, Tobacco, and Firearms (ATF) Type II explosive storage magazine that will be kept on the Project Site. Any applicable permits will be obtained for the storage of recovered OE items within the magazine. Placement and care of the magazine will follow ATF, state, and local guidelines for the storage of high explosives. Recovered OE items will be temporarily stored in the magazine until they are disposed of. The length of time that OE items will be stored is dependent upon the accumulated explosive weight of the OE recovered, the explosive weight storage limit of the on-site magazine (as established by required permits), and Resource Conservation and Recovery Act (RCRA) storage requirements that regulate the length of time OE items can be stored. To ensure the permitted magazine explosive weight limit is not exceeded, an inventory of all recovered OE items will be maintained on Magazine Data Cards, and a running total of accumulated explosive weights will be maintained. All OE items will be properly disposed of no later than the completion of clearance activities. These items will be destroyed by detonation in a contained demolition device (CDD) (e.g., a blast chamber). Based on the largest OE item recovered to date on the Project Site (75-mm), the net explosive weight capacity of the CDD is expected to be large enough to handle any OE item that may be found on the Project Site. However, should an OE item be found whose net explosive weight exceeds that recommended for the CDD, it will be destroyed in a lined designated demolition pit using USACE-approved engineering controls.

### BIP Procedures

If it has been determined that an OE item cannot be moved, it will be BIP after authorization has been received from DTSC. BIP operations will be performed under the direction and supervision of the SUXOS. A Minimum Separation Area (MSA), which consists of all property inside the Minimum Separation Distance (MSD), will be in place during all OE clearance activities. This MSD will be established by USACE, and will be based on the range beyond which hazardous fragments from an accidental detonation will not present a significant hazard to public health and safety. This MSA will be

enforced for persons not related to Project Site OE clearance activities. Prior to a BIP, all personnel, except those needed to safely and efficiently prepare the item(s) for destruction, will be evacuated from the MSA. The SUXOS will verify that all nonessential personnel are outside the MSA prior to a BIP.

All demolition operations will be conducted by safely detonating OE items using proven and USACE-approved engineering techniques to control/minimize hazards of blast and fragmentation. The UXOSO will monitor compliance with safety measures contained in the Site-Specific Safety and Health Plan (SSHP), and will stop or suspend operations in the event of noncompliance. In all cases, disposal operations will be performed between the hours of 9:00 a.m. to 3:00 p.m. Monday through Friday, and will not be conducted during days of low cloud cover or temperature inversions, which could amplify noise associated with detonations and adversely affect local residences.

To identify if the item to be detonated is in direct contact with a secondary OE item that could add to the total explosive weight (should it be sympathetically detonated during a BIP operation), the OE item will be investigated using a mine probe. Should the item be in direct contact with another OE item, appropriate engineering controls will be employed to either eliminate the direct item-to-item contact, which will eliminate the possibility of a sympathetic detonation or to compensate for the potential detonation of the second item during the intentional demolition of the first item.

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## **APPENDIX F**

### **MINIMUM SEPARATION DISTANCE INFORMATION**



**Table F-1. Minimum Separation Distance Information**

Munitions Type	MSD (feet)	Total Number of Homes within the MSD	Total Number of People Affected (assuming 2.3 people/house)	Total Number of Homes "Not Evacuated" but Affected by Road Closures <sup>(a)</sup>	Total Number of People "Not Evacuated" But Affected by Road Closures <sup>(a)</sup>	Number of Businesses Affected	Maximum Number of Days an Individual would be displaced from Home or Business
1/600 MSD 37mm Projectile or 60mm Mortar	200	141	325	111	256	0	5 to 6 days for initial point clearance plus 1 additional day for 100% QC. 14 to 18 days for areawide clearance. On any given day no more than 50 homes (approximately 115 individuals) would need be evacuated.
Maximum	450	229	527	52	120	11	6 to 8 days for initial point clearance plus 1 additional day for 100% QC. 18 to 20 days for areawide clearance. On any given day no more than 60 homes (approximately 138 individuals) would need be evacuated.

Note: (a) These are homes that will not have access to through streets during work hours.

mm = millimeter

MSD = minimum separation distance

QC = quality control

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## **APPENDIX G**

### **MINIMUM SEPARATION AREA NOTIFICATION AND IMPLEMENTATION PLAN**



**MINIMUM SEPARATION AREA  
NOTIFICATION AND IMPLEMENTATION PLAN ("MSAP")**

**APPROVED BY DTSC MAY 9, 2001 FOR INCORPORATION INTO THE  
PUBLIC PARTICIPATION PLAN, TOURTELOT PROPERTY CLEANUP  
PROJECT, SEPTEMBER 1999**



# MINIMUM SEPARATION AREA NOTIFICATION AND IMPLEMENTATION PLAN (MSAP)

## Introduction and Purpose

The Tourtelot Cleanup Project entails the safe location, investigation and removal of ordnance and explosives (OE), OE scrap and other metallic items. Trained OE safety specialist teams will conduct this process according to U.S. Army Corps of Engineers' (Corps) ordnance clearance procedures. The California Department of Toxic Substances Control (DTSC) has approved these procedures.

The Corps has performed calculations to establish a Minimum Separation Distance (MSD) that must be maintained between clearance operations and the public. For the Tourtelot Cleanup Project, the MSD has been determined to be 200 feet. The MSD distance will remain constant unless ordnance is found during remediation that would require a recalculation of the MSD to comply with the Corps' established clearance procedures.

An MSD is measured from the outer limits of an OE clearance operation as a radius. This radial distance is applied 360 degrees and forms an area that is controlled and restricted to project personnel during clearance work periods. For purposes of this plan, this area will be known as the Minimum Separation Area (MSA).

## Minimum Separation Area (MSA)

A portion of the MSA includes private and public properties that lay outside the project site. This Minimum Separation Area Notification and Implementation Plan (MSAP) addresses the scheduled/pre-planned temporary withdrawal of residents who reside in the MSA when intrusive OE clearance operations are underway. For example, when such work is scheduled to occur in a project area with a MSD of 200 feet, preplanned temporary withdrawal from homes within that MSD will take effect. It is anticipated that affected residents will be required to withdraw from their homes during the daytime (from 8:30 a.m. to 5:00 p.m.) on the scheduled dates. Typically, clearance work will occur only Monday through Friday.

In addition to persons who live within the MSA, the establishment of the MSA may affect other residents in the area, such as residents whose homes aren't affected by the MSA, but whose ability to travel to and from their residences may be impeded by the closure of streets within the MSA. These residents will be addressed as part of this MSAP.

## MSA Notification

The project proponents will undertake a number of actions to ensure residents within or affected by the MSA are informed of the temporary withdrawal and have an opportunity to have their questions answered and special needs addressed. Residents whose homes do not fall within the MSA, but whose ability to travel to and from their residences may be impeded by the closure of streets within the MSA, will be included in the MSA notification. This notification will be provided on the time schedule described below. The notices will include a telephone point of contact that can be used in the event an emergency requires a resident whose ability to travel to and from their residence is impeded by the closure of streets within the MSA to leave their home while a MSA is in effect. In an emergency, residents would be

Minimum Separation Area Notification and Implementation Plan  
Tourtelot Cleanup Project, Benicia, California

able to call this number to temporarily halt clearance activities so that they could depart safely. Communications will also be established with public agencies in Benicia. These actions are as follows:

1. Approximately 60 days prior to clearance activities and temporary withdrawal, the proponents will distribute a newsletter to residents within or affected by the MSA. The newsletter will provide an overview of the Tourtelot Cleanup Project, describe the requirements for public withdrawal from the MSA and notify residents of the potential hazards associated with clearance activities. It will also provide answers to frequently asked questions, a project map and anticipated schedule and contact information, including a 24-hour information phone line and website address. The newsletter will include a point of contact that residents can use if they need assistance to address such special needs as transportation; child care coordination; boarding of pets; assistance with frail, ill or disabled household members; or temporary accommodations for residents who normally conduct business from home offices.
2. Approximately 30 days prior to clearance activities and temporary withdrawal, the proponents will:
  - i) brief the Community Advisory Group, the City of Benicia, the Benicia Fire Department and the Benicia Police Department regarding the designated MSA, the anticipated dates of withdrawal, the addresses falling within or affected by the MSA, and withdrawal procedures;
  - ii) hold a workshop to provide area residents with information regarding clearance activities and the temporary withdrawal. Residents can also use this opportunity to ask questions, provide the project proponents with input, and request assistance with special needs associated with withdrawal;
  - iii) distribute notices with information about the specific anticipated dates and times of the required withdrawal to each address within or affected by the MSA. The notice will include a point of contact and form for reporting special needs.
3. Approximately 10 days and 72 hours prior to clearance activities and temporary withdrawal, the proponents will distribute reminder notices to each address within or affected by the applicable MSA. The notices will include the point of contact information to address special needs associated with the temporary withdrawals.
4. In the event changes to the schedule are necessary following the 72-hour reminder, residents will be encouraged to call the 24-hour information phone line or check the project website to make sure the planned withdrawal is still on schedule.
5. Throughout the period that clearance activities are being conducted, the proponents will regularly update the City of Benicia, Benicia Police Department and Benicia Fire

Department of the specific areas scheduled to be within the MSA in upcoming activities and of any roads or other public facilities that would be closed during the clearance activities.

6. On the evening before the planned withdrawal, representatives for the project proponents will go door-to-door in the MSA to remind residents about the next day's activities and to address any special needs.

### **Broader Notification**

In addition to the 200 foot MSD recommended by the Corps, DTSC is requiring residents, businesses and schools within the Voluntary Separation Distance (VSD) to be notified of the potential hazards associated with an accidental detonation. The VSD is based upon the Maximum Fragmentation Distance (MFD) for the most probable munition (either 1080 feet or 1181 feet depending on the specific area of the project site and the applicable most probable munition). These distances will remain constant unless ordnance is found during remediation that would require a recalculation of the MSD and MFD distances to comply with the Corps' established clearance procedures. Persons within the area between the MSD and VSD (between 200 feet and 1080 or 1181 feet) will not be required to withdraw, but may voluntarily do so. Persons choosing to withdraw from the VSD will be offered the same support services as persons within or affected by the MSD.

The proponents will inform persons who live in the area between the MSD and VSD of special considerations that may affect them. This includes residents whose homes aren't affected by the MSA, but whose ability to travel to and from their residences may be impeded by the closure of streets within the MSA.

The notifications to residents residing within the broader area will include the following actions:

1. Approximately 60 days prior to clearance activities the proponents will distribute a newsletter to addresses within this broader area. The newsletter will provide an overview of the Tourtelot Cleanup Project, describe the requirements for public withdrawal from the MSA, the option of voluntary withdrawal from the MFD, and notify residents of the potential hazards associated with OE clearance activities. It will also provide answers to frequently asked questions, a project map and anticipated schedule and contact information, including a 24-hour information phone line and website address.
2. Approximately 10 days prior to clearance activities the proponents will distribute a reminder notice to addresses in the greater area surrounding the MSD. This notice will remind the recipients of the pending clearance work and encourage them to check the 24-hour information phone line and the website for additional information.
3. A workshop will be held to provide area residents with information regarding clearance activities and the voluntary withdrawal. Residents can also use this opportunity to ask questions, provide the project proponents with input, and request assistance with special needs associated with withdrawal.

Matthew Turner Elementary School does not fall within the 200 foot MSD. The school will be included in the broader notification area. The geophysical mapping of the portions of the Project Site nearest the school will help to determine the steps necessary to minimize affects on school operation. The proponents will work with school officials to be sure they are adequately informed about the Tourtelot Cleanup Project, the MSA and the issues affecting the broader notification area, so that they may determine the appropriate response and communicate with parents. The proponents will address any other issues related to the clearance activities that the school officials identify.

Proponents will also contact City of Benicia officials to discuss any issues related to public areas or facilities that are affected by the broader notification area including the community park, walking path and Lake Herman, so that they may determine the appropriate response.

If ordnance were to be found during remediation that requires a recalculation of the MSD distances to comply with Corps' established clearance procedures, a determination will be made as to whether the revised area affects the school or other public areas. If the school were affected by the revised MSD, the proponents would coordinate with school officials to establish a procedure for notifying parents of the activities affecting the school. If other public areas are affected, the proponents will coordinate with City of Benicia officials regarding appropriate actions and notifications.

### **MSA Security**

The proponents' site clearance contractor will employ trained safety personnel to oversee the withdrawal from the MSA and restrict re-entry during clearance work hours. At the beginning of each workday, the assigned personnel will visit each affected residence within the MSA, look for signs of anyone being present and knock on doors. If any unauthorized persons are determined to be within the MSA, they will be asked to depart and clearance work will not begin until they have left the MSA. The safety personnel will also post signs or erect barriers to close affected streets and walkways to restrict unauthorized entry to the MSA. Personnel will be stationed in appropriate locations outside the MSA to monitor activities continuously during the clearance workday. In the event that unauthorized persons enter or are found within the MSA, clearance activities will be halted until the area is cleared.

If unauthorized persons fail to leave the MSA, the Benicia Police Department will be contacted for assistance in clearing the area in accordance with City of Benicia Ordinance #01-02.

### **Hospitality Services During Work Hours**

Residents within the MSA who are required to temporarily withdraw from their residences or residents within the VSD who choose to voluntarily withdraw during the day may use the services provided by the proponents' Hospitality Center located at the Best Western Heritage Inn. These services will include refreshments and meals, telephones, television and other amenities. In the highly unlikely event that residents are prevented from returning to their homes for the evening, suitable overnight accommodations will be made available to them at the Hospitality Center.